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Waves, thoughts and a player piano

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This thesis contains no material, which has been accepted, for a degree or diploma by the University or any other institution. To the best of my knowledge and belief, it incorporates no material previously published or written by another person except where due acknowledgement is made in the text.

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Abstract

Waves, thoughts and a player piano is both a speculative and practical investigation of strategies to invoke notions of reverie through a uniquely re-constructed player piano and musical improvisation. Based on the experience of listening to the sound of waves, the research considers sonic reverie and its value as a locus for creative thought and stimulus to sound and installation practice. Generative frameworks for translating and transcribing place-based reveries and embracing sound's intrinsic ambiguity are informed by experimentation and improvisation, and extended through iterative processes - recognising that art based on imaginative translations of real world experiences may contribute to depths of experience as intensive as they are expressive.

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The central argument

Waves, thoughts and a player piano is both a speculative and practical investigation of strategies to invoke states of reverie through prepared player piano and musical improvisation. Based on the experience of listening to the sound of waves, the central argument of this research considers sonic reverie and its value as a locus for creative thought and stimulus to an experiential approach to sound and installation practice. This is tested through developing new strategies for translating and transcribing place-based reveries and embracing sound's intrinsic ambiguity. Locating performativity as the methodological paradigm, the research considers generative frameworks for composition, installation and performance informed by experimentation and improvisation and extended through iterative processes.

The motivation behind the research stems from contemplative experiences in Adventure Bay Beach, Bruny Island - my favourite place to sit and think. Having built a practice based on asking artists about the inspiration behind their work, and interpreting the gap that occurs between private process of thought and their articulated delivery (ums, ahs, pauses and punctuation,

the “in between” space), I realised when I asked myself the same question, the answer was ‘here: sitting here and day dreaming’:

> *Sitting on the beach, warm and soft and sandy, my best place to think. Almost mesmerised listening to the waves. Every wave is a choir: it’s a front and a backwash occurring sometimes at the same time, over and over. Its music to me.*
> Field notes from recording a set of waves at Bruny Island on June 24th, 3.27pm, 2014.

The project tests new strategies for translating and transcribing place-based reveries and embracing sound’s intrinsic ambiguity. These processes of auditory abstraction have, in translation, become distinct from their source - seen here as a response to experience which maintains its vitality and avoids fixed meaning. In so doing, the research tests and extends traditional boundaries relating to composition, performance and installation.

Utilizing a reconstructed and automated player piano as a tool for building new sound experiences, the work presents a composed instrument intended for use in improvisational settings. As an instrument, the player piano has a significant presence, and a history and tradition that implies people gathering together for collaborative musical performances: here, the player piano provides a performative sound structure for musicians and artists to engage, collaborate and improvise with, envisioning and perhaps subverting the expectations of what those experiences may be, and creating sound experiences open to unanticipated forms of attentiveness.

Foregrounding the aims of the project is French philosopher Gaston Bachelard’s (1942, 1958, 1960) ideas of reverie as they relate to water. Bachelard defines reverie as daydream: the imagining consciousness and locus for creative thought. Included are his ideas of *material imagination* (art as grafted nature), and *intimate immensity* (seeking profound depths of experience through daydreaming). Reverie and sound are considered in terms of their similar tenets, as cited in the writing of Brandon Labelle (2012) and Eldritch Priest [et.al] (2017). The conflation of sound with reverie is seen in

context to Cameron Robbins's *Sea Shanties of the Subconscious* (2007) and *Life Boat Reverie* (2008), as well as in my own thesis. These ideas are viewed as intensive and contingent: accepting that sound art captures the infinite in that sound is 'undetermined, transcendent and beyond being' (Best 1997, p.61), and that thoughts themselves may be considered as equally so. It follows that sounds which correspond to the rhythm and flows of natural phenomena (such as waves) may equally correspond (and be conducive to) the rhythm and flow of creative reverie: of being in the world yet letting thoughts flow freely, loosing thoughts and bringing others into being.

That 'music', distinct from sound, may emerge in the space of acoustic experimentalism is discussed in accordance to framing and intention. The history and significance of modernist acoustic experimentalism is considered through the writings of Umberto Eco (1959), Cox & Warner (2004), John Cage (1958) and Michael Nyman (1974) in considering the 'open' composition strategies of artists John Cage, Earl Brown and Karlheinz Stockhausen in the 1950s and 60s; the process focus of the 'experimental music' of Cage and Michael Nyman in the 1960s and 70s; as well as the extended improvisational techniques of European 'improvised music' and its American counterpart 'free jazz' in the 1960s. The flexible boundaries between composition and improvisation within this project are further discussed in relation to Fredrich Rzewski's (1999) ideas of the difference between them and Richard Dudas's idea of 'comprovisation' (2010).

The contemporary extension of modernist sound practice is seen through the lens of what theorist Seth Kim-Cohen (2009) terms 'sounds expanded situation': works which expand on modernist experimentalisms outlooks, techniques and concepts in considering source and context, as well as the audience, time, site and modes of presentation. As context, Janet Cardiff's *The Forty Part Motet* (2001), John Wynne's *Installation for 300 speakers, Pianola and vacuum cleaner* (2010), and *Fathom* (2007) by Jane Grant and John Mattias are discussed. Theorist Brandon LaBelle's (2012) idea of the relationality of sound (to events, bodies, things) and its ability to entwine the

represented with the non-represented is considered in conjunction to Susan Phillipz's work *Study for Strings* (2012) and within my own project.

Iteration as a generative framework is considered regarding Barbara Bolt's (2016) suggestion that the creative process is the product of a performative act where meaning is derived through play and cycles of making and reflection. Citing the writings of Jaques Derrida (2012) and Judith Butler (1988, 2011, 2015), Bolt contends that these cycles have generative research potential - termed 'repetition with difference' - seen as the mechanism through which creative movement and transformation may occur in practice. Marco Fusinato's series of works *Mass Black Implosions* (2007 - current) are considered as illustrative to these ideas. The progressive series of prior works which provided both a formal and conceptual basis to this research are detailed, as well as how the form of the framework itself may generate, extend and transform aural experiences.

Artists considering natural forces (such as wind, waves and the movement of the planets) often produce inherently 'musical' work. Theorist Diego Garro (2012) contends that constructing sound using similar elements found in nature (patterns, networks, balances and flows) builds meaning through interpretative and relational processes, as evidenced in Percy Grainger's '*Sea Song sketch'*, *3 Solovoxes played by Pianola Roll* (1950). Murry Schafer (1977) see's these relational processes as each extending and developing the complexity of the other, and Jeff Maplas (2006) suggests that this allows for new and perhaps unanticipated ways of exploring the world. These ideas are exemplified here by Michaela Gleave's on going project *A Galaxy of Suns* (2016 -). That sound is a thing in itself is discussed in context to Mineko Grimmer's work *The Dialogue* (2011). 'Musicality' in this project is founded in generative musical frameworks, the aesthetic of which are based on functionality and the mechanics of realisation.

The work presented for final submission has been considered in terms of its *potential* to invoke reverie, both as an installation in itself and as a

provocation to possible musical responses and audiences. Sebastian Lexer defines potentiality as an awareness of incompletion: 'potentiality maintains itself in relation to its own privation. Actualization erases potentiality. A finished performance and a recording are testimony of the actualization'.[1] The work has been conceptualized in accordance to the experience of the here-and-now: approaches to composition, performance and presentation have been informed by improvisation, and the intention of collaborative interaction recognises both the generative force of human imagination, instrumental possibilities and affective potential.

The following chapters describe in detail the conceptual basis of the project, as well as the methodologies and processes undertaken within this practice-led research. **Part two: the project in context** outlines the field of artists and theoreticians who's works and writing correspond to the concerns of the project. **Part three: methodologies and processes** charts how the project was pursued and the strategies employed in the development and realisation of the work over the course of the project.

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1. Lexer, S. 2010, 'Piano+: An Approach Towards A Performance System Used Within Free Improvisation', *Leonardo Music Journal,* vol.20, p.41

2

The project in context

Situated within a field of artists and theoreticians whose works and writing correspond to the concerns of the project, several thematic categories are discussed in relation to the research context. **The value of reverie and its conflation with sound** recognises the imaginative force of reverie - experienced when daydreaming in nature - as a locus for creative thought and movement in practice, and that sound and contemplative experience have similar tenets. **The history and significance of experimental sound** to this research is considered in relation to modernist experimentalism's outlooks, techniques and conceptual approaches. The contemporary extension of modernist ideas and the activation of the dynamics of sound and space is discussed in relation to **sound's 'expanded situation'.** Iterative processes as generative frameworks are detailed in **iterative difference,** and that sound works may become inherently 'musical' when constructed using similar patterns and flows to those found in nature, alongside 'musical' frameworks, is explored in **natural forces and musical machines.**

2.1 **The value of reverie and its conflation with sound**

> *There must be a union of dream-producing and idea-forming activities for the creation of a poetic work. Art is grafted nature.*[2]

Sounds are events happening in the now, abstractions with real material effects. There is something fundamental in the nature of the sound of waves - an immersive and transitory character, meditative yet chaotic rhythm - that lends itself to be aligned with daydreaming and contemplation. This research project began with recording a set of waves at Adventure Bay beach, Bruny Island, my favourite place to sit, think and daydream (discussed in chapter 2.4).

Gaston Bachelard speaks of the value of reverie in his book *The Poetics of Reverie* (1960). Here, Bachelard's ontology of the imagination considered poetic reverie as the source, or *locus*, from which creative thought arises.[3] Reverie, for Bachelard, is the creative daydream, experience (or images) of the imagination of dynamic matter, where the imagining consciousness is the origin of creativity. Manifested as an aspiration toward new images, it is a force of becoming - of going beyond one's present being - as Kaplan explains: 'Reverie is the state in which the poetic image actualizes a new being of imagination'.[4]

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2. Bachelard, G. 1942, translated by Farell, E. 1983, *Water and Dreams: An Essay on the Imagination of Matter*, The Pegasus Foundation, Dallas. p.10.

3. Skinner, C. 2013, *The Poetics of Reverie,* Michigan Quarterly Review Online, https://sites.lsa.umich.edu/mqr/2013/09/the-poetics-of-reverie-2/. Accessed 21/5/2018

4. Kaplan, E. 2012, *Gaston Bachelard's Philosophy of Imagination: An Introduction*. http://www.scienzaefilosofia.com/2018/03/27/gaston-bachelards-philosophy-of-imagination-an-introduction/. Accessed 25/5/2018

In *Water and Dreams: An Essay on the Imagination of Matter* (1942), Bachelard suggests that images that stem directly from matter give life to *material imagination*: 'If reverie is to be pursued with constancy, it must discover its *matter'* (p.6). He sees water as the most receptive of the elements in relation to daydreaming and seeking profound depths of experience. In *The Poetics of Space* (1958) Bachelard posits that *immensity* is a philosophical category of daydream: one that transports the dreamer outside the immediate world to a world that 'bares the mark of infinity':

> 'We do not see it start, and yet it always starts the same way, that is, it flees the object nearby and right away it is far off, elsewhere, in the space of elsewhere. When this elsewhere is in natural surroundings, that is, when it is not lodged in the houses of the past, it is immense. And one might say that daydream is original contemplation' (p.184).

The activity of the imagination - its essence as force - is characterized as profound: Kaplan sees this as an optimistic message, 'for man to exercise his intrinsic freedom, to transcend the world - and himself - by reconciling man and nature through the activity of the imagination'.[5]

As stated in my introduction, this project considers that sound art captures the infinite in that sound is 'undetermined, transcendent and beyond being' (Best 1997, p.61), and that thoughts themselves may be considered as equally slippery. It follows that sounds which correspond to the rhythm and flows of natural phenomena (such as waves) may equally correspond (and be conducive to) the rhythm and flows of creative reverie. I do not see this as an exclusive state - being in the world yet letting thoughts flow freely, losing thoughts and bringing others into being, is a quality I aspire to both capture and evoke within the work.

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5. Kaplan, E. 2012, *Gaston Bachelard's Philosophy of Imagination: An Introduction*. http://www.scienzaefilosofia.com/2018/03/27/gaston-bachelards-philosophy-of-imagination-an-introduction/. Accessed 25/5/2018

That sound and contemplative experience have similar tenets is seen by theorist Brandon Labelle as an 'acoustical paradigm' - how sound sets in motion not only the material world but also the flows of the imagination: [Sound] latches together concrete reality with all the murmuring of the unconscious - an animate ghosting of the material plane'.[6] Eldritch Priest, an editor of *Ludic Dreaming: How to listen away from contemporary technoculture* (2017) writes that "'sounds" immersive character [...] not only makes it dream-like but also reveals how dreams' pervasive abandons are decidedly "sound-like"' (p.10). By conflating the metaphorics of sound with that of dreaming, here David Cecchetto, Marc Couroux, Ted Hiebert and Eldritch Priest articulate, like Bachelard's idea of *intimate immensity*, 'imaginary magnitudes of existence that refuse not only a single scale of relation but a single relation of scale' (ibid. p.14). How to make tangible the underlying structures and rhythms of natural forces and, through sound and installation, capture or provide a locus for reverie and the flow of the imagination is a central aim of this research.

In 2007, Cameron Robbins constructed *Sea Songs of the Subconscious* on Lorne Pier in Victoria, and in 2008 *Life Boat Revery*, installed in a disused lifeboat shed on the Queenscliffe Pier, Melbourne.

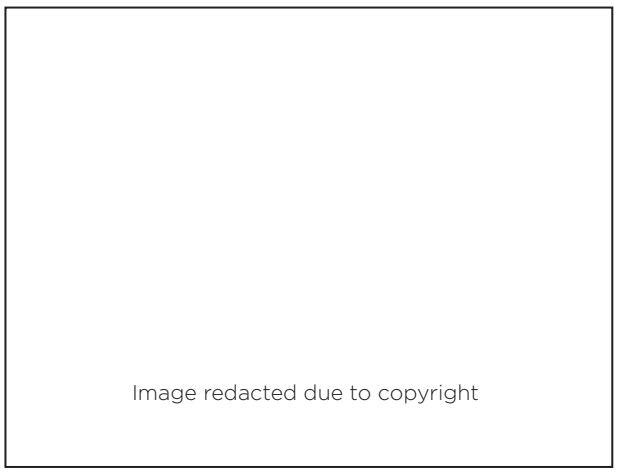

Figure 1: Cameron Robbins, 2007, *Sea Shanties of the Subconscious*

6. Labelle, B. 2012, 'Acoustic Spatiality', *The Zone and Zones - Radical Spatiality in our Times*, vol.2, no.3, p.2. https://www.sic-journal.org/ArticleView.aspx?aid=123. Accessed 10/11/2018

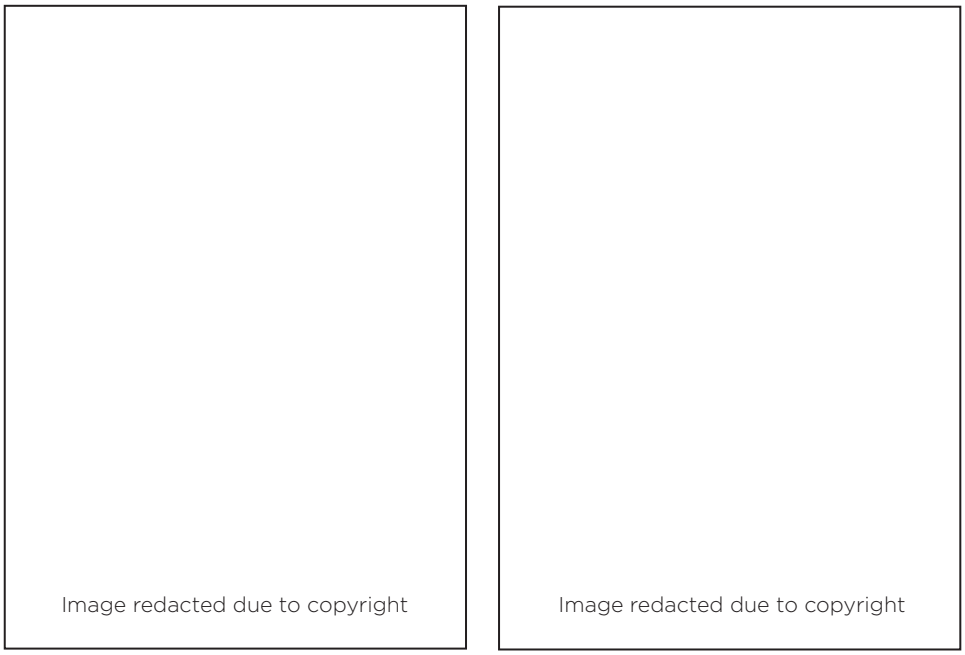

Figure 2: Cameron Robbins, 2008, *Life Boat Revery*

Both of these works provided a sound-scape of the sea, responsive to wave and tidal movements. Tuned organ pipes were connected to the sea via long PVC plumbing tubes, and the force of the tide and waves pumped air into the pipes, sounding a bass F-minor chord. The sound was both haunting and melancholic, and in conjunction with the sound of the waves themselves - profoundly beautiful. Robbins' titles for these installations provide an obvious parallel to this research in considering the force and sound of inter-tidal experience as relating to both the subconscious and reverie; he defines a reverie as a daydream, and also as a short musical piece that can send the listener into a state of daydreaming.[7]

This thesis began with the making of a work titled *Wave/wave form choir III,* exhibited at the Moonah Arts Centre in 2018, which utilised sound, salt and video to embody the inter-tidal experience as meditative and transient, both invisible and present, enabling a sense of reverie (figure 3.)

7. Robbins, C. 2008. http://cameronrobbins.com/life-boat-revery/. Viewed 10/11/2018

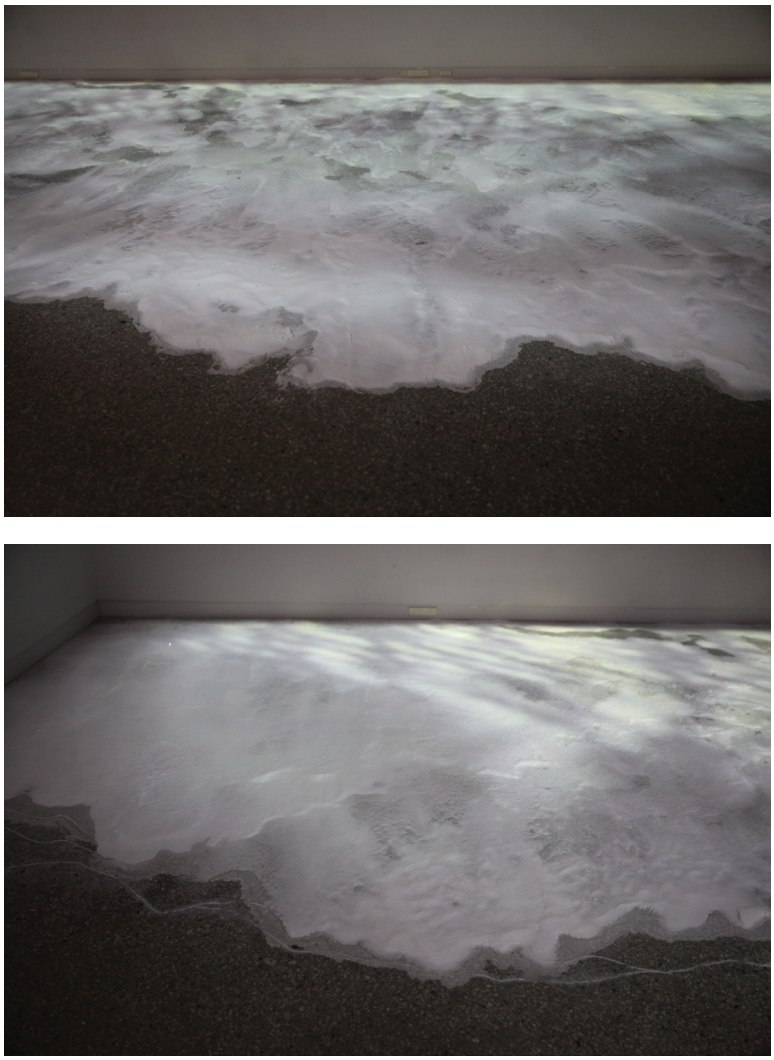

Figure 3: Cath Robinson, 2018, *Wave wave/form choir III*

As Eliza Burke said in the exhibition opening remarks:

> ‘For Cath, water is the raw material for exploring the links between spaces of contemplation, liminal states and acoustics. Her multi-layered process begins with making field recordings of the sound of waves on the ocean beach, which she then subjects to various processes of translation and transformation….Weaving between the sonic and temporal realms, Cath’s wave forms… [ask us] to immerse ourselves and attune our senses to the flux of resonance in water’s rhythmic and tonal range….I have come to see the [process] as filterings – a way of responding to the fluidity of water, to sift and

> reassemble material and conceptual elements and render clarity from chaos, recognise something knowable amidst the unknown. Through these filterings, the movement and sound of water is traced, and retraced...so that we find ourselves in a space where, rather than us catching a wave, it catches us.'[8]

The work was made by initially playing the sound from the work *Wave/ wave form choir* (a choir of 16 voices, discussed in chapter 2.4) through the mechanism of a prior work titled *Thought noise resonator (*2010*).* Consisting of a metal tray of black inky water sitting on metal rods atop 13 sub woofer speakers, the mechanism uses cymatics as a means of visualising resonance in water.

Figure 4: Cath Robinson, 2010, *Thought noise resonator*

Voices from the choir were videoed as they resonated through the water, and the video was then inverted (making the black ripples white). For *wave/wave choir III,* this video was projected onto salt on the gallery floor. The thick layer

8. Burke, E. 2018. Opening comments for the exhibition *Water and Wave forms,* Moonah Arts Centre

of salt had been applied with buckets of water and spray, visually reminiscent of the convergence of the tide on the shore, and the resonating projection brought this alive: in sync with the sound of the choir playing through two large speakers high in the space, the salt became a material in flux. The installation did invoke a sense of reverie in the audience, evident by the amount of time people spent with the installation and their visible reactions to it.

Link to video documentation: https://youtu.be/C031eulpbSw

2.2 **The history and significance of experimental sound**

The use of sound and space, and the exploration of the relationship between them, is sited within historic precedents of both musical and non-musical acoustic experimentalism. Definitions of contemporary sound art and its evolution are inherently difficult, 'in accordance to its interchangeable identities of sound, noise and music'.[9] Gail Priest, in *Experimental Music - Audio Explorations in Australia* (2009) says that experimental music is dependent on framing:

> 'Music emerges from a collection of sounds that are defined by a period of time and are *intended* to be heard as music [...] However, it is not a passive acceptance that *everything* is music; rather, this framing encourages an intensive interrogation of the sounds and silences from which music is made, and expands our perception of the aural realm' (p.2).

The sound used in my work is experimental and has been developed through a series of iterations stemming from the audio/visual wave form of field recordings of waves. Although traditional techniques of composition have not been used, the use of musical instruments in developing the sound has, to some extent, framed the project as 'musical' (as discussed in chapter 2.5).

Early investigations into experimental sound are now part of the accepted cannon of musical history: the 'open' composition strategies of John Cage, Earl Brown and Karlheinz Stockhausen in the 1950s and 60s; the extended improvisational techniques of European 'improvised music' and its American counterpart 'free jazz' in the 1960s; as well as the process focus of the 'experimental music' of Cage and Michael Nyman in the 1960s and 70s.

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9. Schuze, P. 2013, 'Audio Visual - The problems of defining and exhibiting sound art'. *Frieze*, p.3.

Although there are obvious overlaps here, the origins of these movements are distinct: 'indeterminacy' emerged from the 1950s classical avant garde in a move away from highly structured composition, 'experimental music' has its genesis in the conceptual and performance art of the 1960s, and 'improvised music' was a move away from traditional instrumentation hierarchy and commercialised industry. The debt that my work owes to these investigations in terms of considerations regarding outlook, techniques, conceptual approaches and context cannot be underestimated, as I will explain further in this chapter.

In the 1950s, Earl Brown constructed 'open' forms in music through creating flexible situations that subjected 'musical relationships to constant and virtually unpredictable, but inherent, change'[10] using graphic scores. The scores were used as ambiguous performance stimulus in collaborative settings, for example, *December 1952.* For this work, Brown had musicians interpret a visual score comprised of rectangles of various sizes and widths, both horizontal and vertical, directly inspired by the mobiles of Alexander Calder. Of interest to me is the idea of creating work with flexible parameters, within which improvising musicians choose when and how to respond to the work within the performance.

John Cage, in his 1958 lecture 'Composition as Process: Indeterminacy' discusses 'open' compositions as falling into two distinct categories: those which are 'indeterminate with respect to composition…[and] determinate with respect to performance' or those that are 'determinate with respect to their composition', but 'indeterminate with respect to their performance'.[11]

Critic and theorist Umberto Eco considered the history and theory of the open work in 'Poetics of Open Work' (1959), using the phrase to describe works that require performers, readers, viewers or listeners to complete or realise them. Eco maintained that the possibilities of the work are available within a given field

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10. Brown, E. 1999, 'Transformations and Developments of a Radical Aesthetic', in *Audio Culture, Readings in Modern Music,* 2004. Continuum, New York. pp.189-195

11. Cage, J. 1958, 'Composition as Process: Indeterminacy', in *Audio Culture: Readings in Modern Music*, 2004. Continuum, New York. p.177

of *relations*, offering the performer 'the chance of an oriented insertion into something which always remains the world intended by that author'.[12]

Eco considered open works to be works in movement, characterised by their collaborative nature, and conducive to a continuous generation of internal relations and decisions: '[An open work] of art, even though it is produced by following an explicit or implicit poetics of necessity, is effectively open to a virtually unlimited range of possible readings, each of which causes the work to acquire new vitality in terms of one particular taste, or perspective, or personal performance' (ibid. p.172).

Ideas stemming from indeterminacy or open works are significant to this project. The sound has been composed through indeterminate processes and performed according to my intention. The number and types of instruments that improvise with the work, and any performative directions given to the musicians has been decided by me. That performers themselves each bring an individual perspective to the performance allows for vitality, movement and the potential for a variety of directions to be realised.

David Nicholls, in *Avant Guarde and experimental music* (1998) attributes the works of Charles Ives (1874-1954) and Henry Cowell (1897-1965) (among others) as having direct influence on the development of 'experimental music' (p.518). The musical interactions of the group known as the New York School in the 1950s - Morton Feldman, David Tudor, Christian Wolf, John Cage and Earl Brown - questioned fundamental tenets of Western art music through devices such as graphic notation and chance, and these ideas were adopted by the European avant guarde, such as Pierre Boulez and Karlheinz Stockhausen (p.526).

John Cage characterised 'experimental music' as a musical action with an unpredictable outcome: initial technical, sonic, conceptual, and social conditions are designed by the composer who then leaves the work to unfold.

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12. Eco, U. 1959, 'Poetics of Open Work' in *Audio Culture, Readings in Modern Music,* 2004. Continuum, New York. p.254

Experimental music's focus was the purposefully unconnected, discrete (often non-conventional) sounds themselves, as well as process itself, sound generation procedures and the materiality of sound unfolding.[13] Two works by Cage exemplify these kinds of ideas: *Water Music* inaugurates a series of pieces - including *Variations IV* (1963), *HPSCHD* (1967-1969), *Roaratorio* (1979), and the *Europeras* (1985-1991) - and *4'33"* (1952).[14]

Michael Nyman, a composer and critic, wrote 'Towards (a Definition of) Experimental Music' in *Experimental Music: Cage and Beyond* (1974) in which he considers the defining features of experimental music to be chance, social, contextual, and repetitive or electronic process of unfixed duration:

> 'Experimental composers are by and large not concerned with prescribing a defined time-object whose materials, structuring and relationships are calculated and arranged in advance, but are more excited by the prospect of outlining a *situation* in which sound may occur, a *process* of generating action [...], a *field* delineated by certain compositional 'rules'' (p.211).

Experimental composition as process is apparent in my work, as will be discussed further in chapter 2.4. I am interested in the presentation of actual events, rather than re-presented events, as well as composing in new ways, including allowing for elements of the work to fall outside of my overt control.

Developed in Europe in the mid 1960s, 'improvised music' and its American counterpart 'free jazz' worked to rid the traditional hierarchy of instrumentation in jazz, classical, rock and pop music in order to allow for musicians to play 'in the moment' and develop 'extended' techniques. Community rather than

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13. Cox, C. & Warner, D. 2004, *Audio Culture, Readings in Modern Music,* 2004. Continuum, New York. p.207.

14. Gann, K. 2010, 'No Such Thing as Silence: John Cage's 4'33"', Yale University Press

industry was valued, with 'co-operation, co-existence and inter subjective exchange' its focus.[15] With regard to my own work, I see the element of improvisation as one which extends the creative possibilities of the work, as although the improvising musicians have direction in terms of the conceptual basis of the work, the musical direction and duration of the work will depend entirely on the performers improvising, of responding to the sound and each other, and on their own ideas of sound, their experience and their taste.

The boundaries between composition and improvisation in this research are flexible. In 'Little Bangs: A Nihilist Theory of Improvisation' (1999), Frederic Rzewski says that composition is a form of remembering, whereas improvisation is about forgetting and living in the moment, an 'autonomous' moment, in which things may happen for no reason at all (p.268). These things are naturally spontaneous and unique. However, it may be said that improvising on an instrument while in the process of composing is common amongst composers. Jim Delaney contends that recording improvisation is something of a paradox: 'However entangled in the moment when generated, the finished products are compositions'.[16] My composition for *Wave/wave form chorus* was developed in this way, with each singer separately recorded improvising to a slowed version of *Wave/wave form constellation,* which was then built up in layers to form the choir (discussed further in chapter 2.4). Richard Dudas coins the term 'comprovisation' when considering the notion of interactive composition and interactive performance relying on combinations of recorded and pre-composed material on the technical side in conjunction with live and improvisational elements on the performance side.[17] These combinations are apparent within my own work, and are discussed further in relation to process and methodology in part three.

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15. Cox, C. & Warner, D. 2004, *Audio Culture, Readings in Modern Music,* Chapter VI 'Improvised Musics' Continuum, New York. pp.249-284

16. Delaney, J. 2009, *Experimental Music - Audio Explorations in Australia,* Chapter 7, 'Networks, Playfulness and Collectivity: Improv in Australia, 1972-2007'. University of New South Wales Press, Australia. p.136

17. Dudas, R. 2010, '"Comprovisation": The various facets of composed improvisation within Interactive performance systems.' *Leonardo Music Journal*, vol.20, p.29

2.3 **Contemporary sound art - the expanded situation**

Contemporary sound art extends modernist experimentalism by engaging with its outlooks and techniques, moving beyond music/noise divisions and considering conceptually based approaches, source and context. Dr Linda Kouvaras, in *Loading the Silence: Australian Sound Art in the Post-Digital Age* (2013) contends that, 'sound art makes art from context to a far greater degree than either music for traditional forces composed in traditional ways or experimentalist music...as LaBelle points out, it correlates closely with sound itself, with its 'very relational, spatial and temporal nature' (p.45). In my work, sound itself activates its context and its conceptual basis is informed by its own framework.

The basis of sound art practice is the activation of the dynamic between sound and space. Theorist Seth Kim-Cohen considers this activation in terms of 'sounds expanded situation'.[18] Kim-Cohen states that sound art is art that has meaning or value in ways not accounted for by Western musical systems:

> 'An expanded sonic practice would include the spectator, who always carries...a perspective shaped by social, political, gender, class and racial experience. It would necessarily include consideration of the relationships to and between process and product, the space of production versus the space of reception, the time of making relative to the time of beholding. Then there are history and tradition, the conventions of the site of encounter, the context of performance and audition, the mode of presentation, amplification, recording, reproduction. Nothing is out of bounds. To paraphrase Derrida, there is no extra-music'.[19]

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18. Kim-Cohen, S. 2009, *In the Blink of an Ear: Toward a Non-cochlear Sonic Art.* Continuum, New York. p.107.
19. ibid. p.107

To paraphrase Kim-Cohen, in contemporary sonic practice, it is not just sound itself that is of consideration, but also who will hear it, where and how it will be heard, and in what context. These kinds of considerations are evident in work of artists Janet Cardiff, John Wynne, Jane Grant and John Matthias.

Janet Cardiff considers how the audience moves through and around her installation *The Forty Part Motet* (2001), a work comprised of forty separately recorded voices singing *Spem in Alium* able to be heard through forty speakers placed in an oval in the space. The audience experiences the work through the view point of the singers, breaking the tradition of having a choir in front of an audience singing *at* them. Here, Cardiff is using sound to physically construct the space in a sculptural way, affording the music itself to be revealed as a changing construct, depending on where the audience is situated within the space.

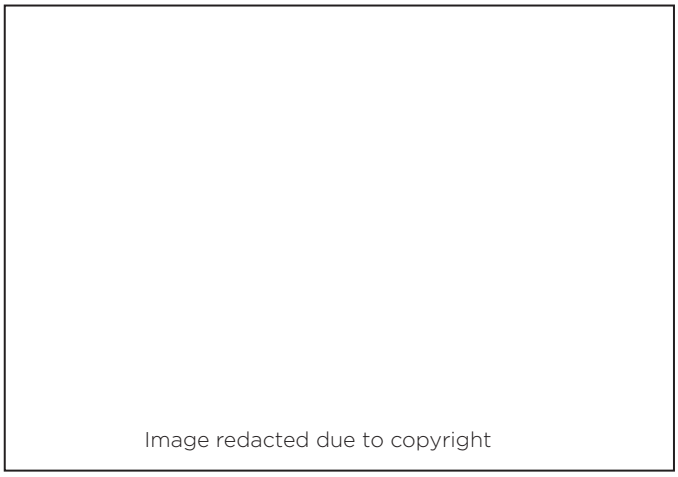

Figure 5: Janet Cardiff, 2001, *The Forty Part Motet*

John Wynne's *Installation for 300 speakers, Pianola and vacuum cleaner* (2010) plays with the acoustics and architecture of the gallery space by utilizing a mountain-like configuration of found speakers covering a player piano along with synthetic sounds sourced from both inside and outside the gallery. Wynne's work considers reverberation and resonance, and his process and presentation uses analogue and digital technologies, amplification and recording to organise sounds in time and space, overlapping notions of the internal and external.

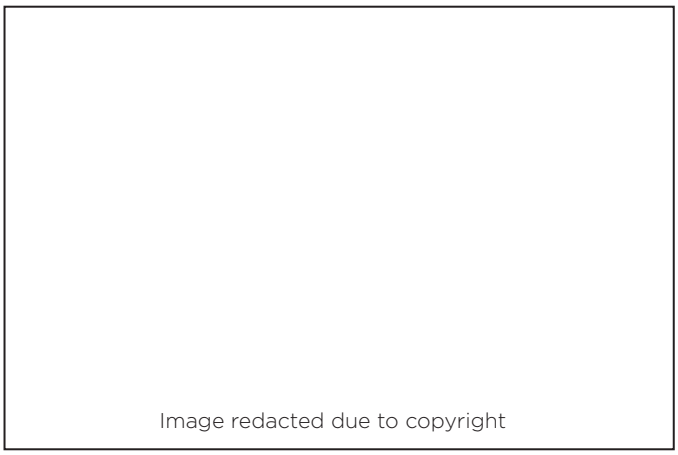

Figure 6: John Wynne, 2010, *Installation for 300 speakers, Pianola and vacuum cleaner*

Jane Grant and John Matthias's *Fathom* (2007) configured the gallery space into a sonic surface, presenting a distinction between underwater and surface acoustic worlds. Live and recorded sounds from the Tamar Estuary and Plymouth Sound created an ever changing underwater sonic environment, and six step ladders allowed the audience to climb above this environment and hear live above water sound, such as birds and man made sounds, relayed by microphones. The result is a conceptual blurring of both expected and real boundaries: between music, sound, and landscape.

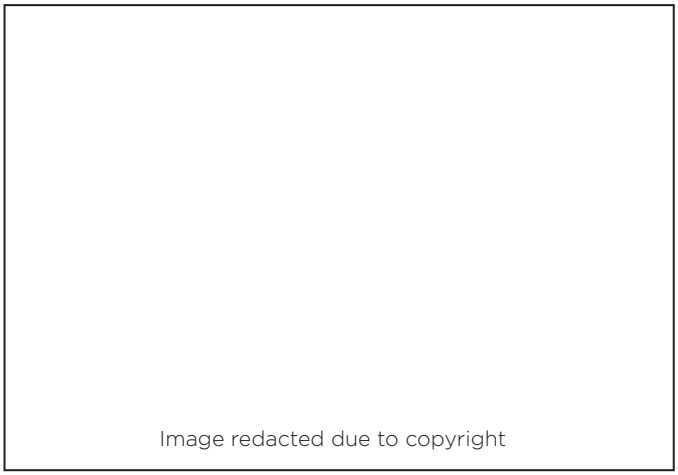

Figure 7: Jane Grant and John Mattias, 2013, *Fathom*

This expanded situation necessarily considers space. The physical parameters of the space are determined in part by what occupies it. Space also affects the sensory aspects of the situation: light and shadow impact visual perception; auditory experience is effected by the height of ceilings and construction materials.

Spatial environments influence physical experience and encourage or discourage social interaction. Brandon Labelle expands on considerations of space in his essay 'Acoustic Spatiality' (2012), seeing sound itself as a space, a kind of 'soft architecture', allowing for contact between, 'the represented with the non-represented – with what has a name and what is yet to be named' (p.8). He discusses the relationality of sound (to events, bodies, things) and how 'sound, as physical energy reflecting and absorbing into the materiality around us, and even one's self, provides a rich platform for understanding place and emplacement. Sound is always already a trace of location' (p.1).

Susan Philipsz work *Study for Strings* (2012) exemplifies Labelle's ideas of the relationality of sound and its ability to entwine the represented with the non-represented. Commissioned by Documenta 13, *Study for Strings* is an 8-channel sound installation based on an orchestral work by Pavel Haas. Haas composed the score in 1943 while imprisoned in the Theresienstadt concentration camp, and the completed work was performed there, once, by incarcerated musicians. The performance was used as a staged documentary film for Nazi propaganda: *Terezin: A Documentary Film from the Jewish Settlement Area* (also known as *The Führer Gives the Jews a City*), of which only fragments survive. A few days after the filming, Haas and many of the musicians were sent to Auschwitz and killed. Although the original scores were lost, the conductor, Karel Ancerl, survived the Holocaust, and reassembled the composition after the war.[20]

20. Camacho, S. 2012, 'Resonance and Wonder: Susan Philipsz's *Study for Strings', International Journal on Stereo & Immersive Media*, vol.1, no.2, p.75

Study for Strings was installed via speakers on a train platform at Kassel Hauptbahnhof, where Haas and his fellow musicians would have departed for the concentration camp. Of the original twenty-four string orchestral work, Philipsz chose to use only the viola and cello parts, recording the playing of each tone separately so that each tone comes from its own speaker. The piece is a note-by-note deconstruction of the original composition, replete with silence, calling attention to the absence of the other instruments—and the musicians who played them.

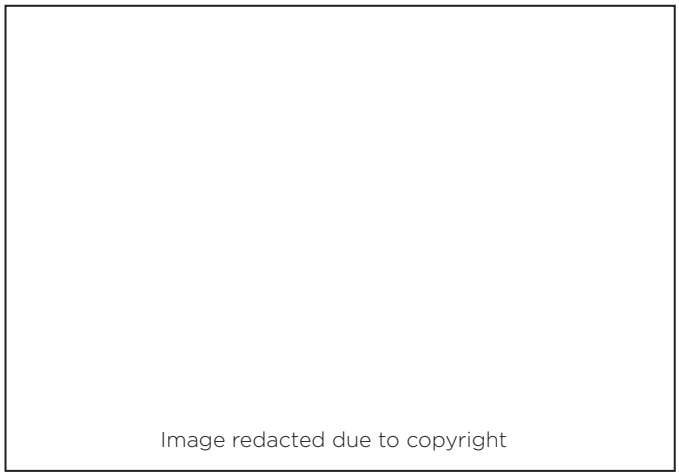

Figure 8: Susan Philipsz, 2012, *Study for Strings*.

> 'At regular intervals, the otherworldly notes from the strings intermingled with the blunt 'live' voices that periodically interjected to announce trains ready for departure. As the trains moved past the end of the platform, they disrupted the relative calm of the listener. Gradually, as the train disappeared from view, the sound of the strings re-emerged, rendered even more poignant by the feeling of departure'.[21]

This mingling of a recorded performance (and its recorded absence) alongside the sounds of the present day, and the subsequent pathos and horror the work conjures, reflects Labelle's concept of 'acoustic spatiality', in that sound

21. Camacho, S. 2012, 'Resonance and Wonder: Susan Philipsz's *Study for Strings', International Journal on Stereo & Immersive Media*, vol.1, no.2, p.75

affords the listener a process of exchange: of being in the world but with an opportunity to extend ourselves from it. Labelle calls this ‘virtual porosity, [sounds ability of] physically confusing interior and exterior, real and mediated’ (ibid. p.6). Sounds vitality may connect or disrupt the distinctiveness of separate spaces, and that of the internal-external, concrete and ephemeral.

Kim-Cohen and LaBelle’s concept of sounds expanded situation is relevant to my work on many levels. Sound fills a space and our experience of sound is an experience of the space as a whole: how an audience is able to access the space and the work has been an important consideration for my installation. The history and tradition of the player piano itself, of people gathering together for collaborative musical performance, has been extended through form: here, the player piano music roll undulates through space, providing a visual character which is affective to the performers. Although my iterative methodology has extended and subverted the sound of the initial field recordings of waves, my intention is that Labelle’s idea of ‘a trace of location’ within the sound itself will still be apparent. Sound also allows for the exploration of the connectedness between spaces: the space into which the sound is played (white cube vs apple cool store); the space within the player piano that enables the production and amplification of that sound; and the space within the body that allows the audience to hear and feel that sound.[22] This connectedness, the relationality of the sound itself, its ‘virtual porosity’, allows the communication between inner and outer in such a way that ideas of reverie - of listening yet letting inner thoughts flow freely, come to the fore.

22. Roden, D. 2010, ‘Sonic Art and the Nature of Sonic Events’, *Review of Philosophy and Psychology,* vol.1, no.1, p.9

2.4 **Iterative difference**

Things are not what they are, they are what they become.[23]

Barbara Bolt, in the essay 'Artistic Research: A Performative Paradigm' (2016) writes that the creative process is, 'the productive material of the performative act' where meaning emerges 'in and through the play of the matter of objects' (p.5). She speaks of Derrida's (2012) idea of iteration as the mechanism through which there is movement and transformation in practice, and that this must be considered through iterative *difference* (ibid. p.136). Cycles of making and reflection with regards to this research and its iterative basis is seen as a means of extending ideas and experimental frameworks whilst recognising the generative potential of ambiguity and indeterminacy (Barrett, ibid. p.139). Thus, as in Bolt's discussion of Judith Butler's ideas (1988, 2011, 2015), participatory approaches that may not be predetermined at the outset of the research may, through the performative paradigm, have generative research potential according to 'repetition with difference' (ibid. p.132).

Marco Fusinato is one such artist who employs an iterative methodology in his work. Known for performing monumental aural sculptures with guitar and electronic sounds of nearly static sound-mass such as *Spectral Arrows* (Rotterdam 2013, Sydney 2014, Venice Biennale 2015), Fusinato has been making a series of works titled *Mass Black Implosion* since 2007. Consisting of score-based compositions that are imagined as explosive noise works, each work reproduces a significant avant-guard music score from the history of experimental music, including scores by Iannis Xenakis, John Cage, Percy Grainger, Yves Klein and Cornelius Cardew. Working with facsimile sheets of the

23. Kaplan, E. 2012, *Gaston Bachelard's Philosophy of the Imagination: An Introduction,* http://www.scienzaefilosofia.com/2018/03/27/gaston-bachelards-philosophy-of-imagination-an-introduction/. Accessed 25/5/2018.

score, Fusinato draws straight lines from each note or symbol towards a single point, creating a graphic rendering of each composition's implied sonic density. Fusinato has said of these works:

> 'The original scores are some of the best examples of applied musical thought, and my template equalises each one to a moment of singular impact. This idea of amplification/collapse is central to what I do. It's a way of getting to the point in the most direct way. Everything becomes evident in the process. It's a way of bringing everything down to its essence'.[24]

Figure 9: Marco Fusinato, 2009, *Mass Black Implosion* (Free music No. 1, Percy Grainger)

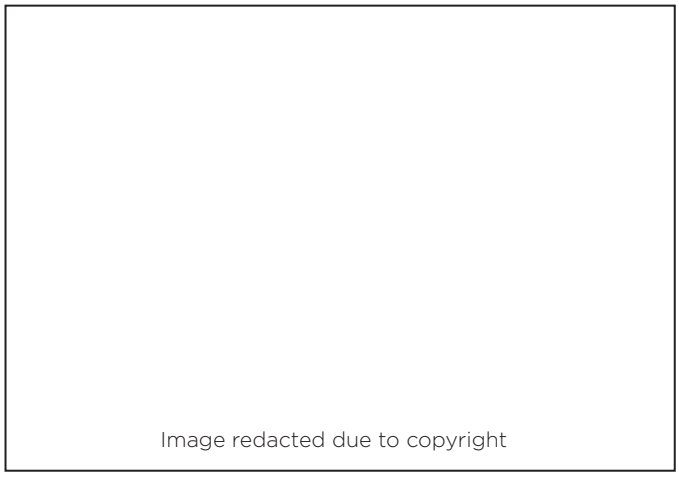

Figure 10: Marco Fusinato, 2012, *Mass Black Implosion* (Mikka S, Iannis Xenakis)

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24. Fusinato, M. 2013, 'Amplifying your collapse: Marco Fusinato in conversation with Emily Cormack', *Artpulse*, vol.4, no.16. http://artpulsemagazine.com/amplifying-your-collapse-marco-fusinato-in-conversation-with-emily-cormack. Accessed 21/5/2018.

The darkness or density of the works is dependent on the amount of notes or symbols in the original score. Each ‘implosion’ changes the original score to one of a singularity of noise, as the implication is that all of the notes on the score would be played at once, creating a simultaneous cacophony of sound. The potency of the performance and the singular impact of these scores remains always within the realm of the imagination of the audience. Fusinato’s visual consolidation of each note over an existing score becomes in itself a re-composition, an iteration of the original. Each version of the series itself is a visually compelling rendering of aural compression, dependent entirely on the density of the original score. Its possible that Fusinato could continue iterations of this work for as long as composers attempt to extend the language of musical thought.

I have used strategies including iteration and cycles of making and reflection for a number of years, and my methodology includes investigating how the form of the framework itself may generate, extend and transform aural experiences. This project is based on a progressive series of experimental works that began with field recordings of waves at Adventure Bay, Bruny Island, in 2014. Each work takes the previous work as its starting point. That the field recordings were initially abstracted by being considered visually - through the use of the audio/visual wave form of the sound as seen in audio software - may seem an unusual motivation, but I was curious as to what this wave form may ‘sound’ like.

In ‘Folto Giardino: Hybrid Cross-Pollination of Score, Performance, Installation and Technology’ (2017) Jonathan Impett contends that wave phenomena provide a natural model for time based art, including sound: ‘They can account for most “musical” or “generative” structures and can have function on micro/timbrel or macro/formal scales. A wave metaphor (for that’s what we’re dealing with) allows sound to be understood not in terms of objects but as an illuminating (enaudiating?) energy. It illuminates spaces, actions and events’ (p.55).

Wave/wave form song (2014), a hand punched Pianola roll performed on a re-envisioned, interactive and digitised Pianola, was based, as mentioned above, on the audio/visual wave form of the recorded waves as visualised by audio software. The wave form was digitally placed on the Pianola music roll and marked at its change of direction points, printed and hand punched. The roll is able to be played and heard by the audience by winding the handle of a converted Pianola, with the resultant sound being chaotic and intense. This work was exhibited in *Connected*, Ten Days on the Island 2015 and in *Tidal,* Devonport Regional Gallery 2015.

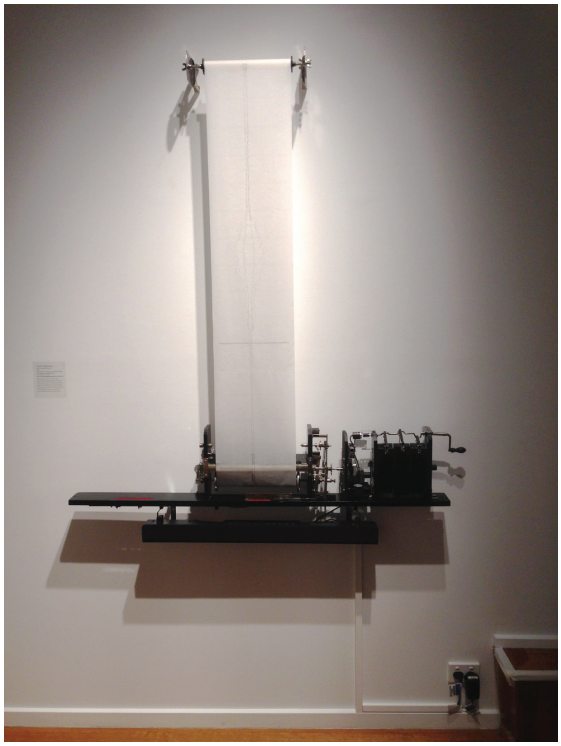

Figure 11: Cath Robinson, 2014, *Wave/wave form song*

Wave/wave form constellation (2015) translated the above sound to an 18 inch music box disk, played on a constructed digital version of an 18th Century Regina Music Box. Due to the nature of the machines resonance, many of the notes from *Wave/wave form song* became obsolete: once a note is struck, the comb must stop resonating before the same note can be played again. This transformed the original sound, making it resonate and melodic. The work was exhibited in *Connected*, Ten Days on the Island in 2015.

Figure 12: Cath Robinson, 2014, *Wave/wave form constellation*

Wave/wave form choir (2017) utilised the voice and the reactive talent of singers from the Southern Gospel Choir. The sound from the music box disk was slowed right down and played to the choir members individually. Their responses were recorded and built up into a choir of 16 voices, heard through 8 hanging speakers in a round. At the edge of the space were layers of evaporated salt water, signifying the transient nature of waves and the barely visible trace lines they leave behind in the sand. The work was exhibited at the Art School in 2017, and in *Hatched,* PICA, Perth, in 2018. Of interest here is that the second exhibition of this work was entirely different than the first, and in fact, more successful. The space in which the work was shown had very high ceilings and prominent acoustics, which added to the resonance of the voices singing. As the floor area of the gallery was smaller, the speakers were hung in a round rather than an oval, which afforded a more intimate encounter with the voices. As the floor was heritage listed, the process of layering many buckets of salt water to visually achieve the inter-tidal zone was not an option, and instead only faint traces of salt lines were used, which had the effect of allowing the voices themselves to become the main focus.

Figure 13: Cath Robinson, 2017, *Wave/wave form choir*

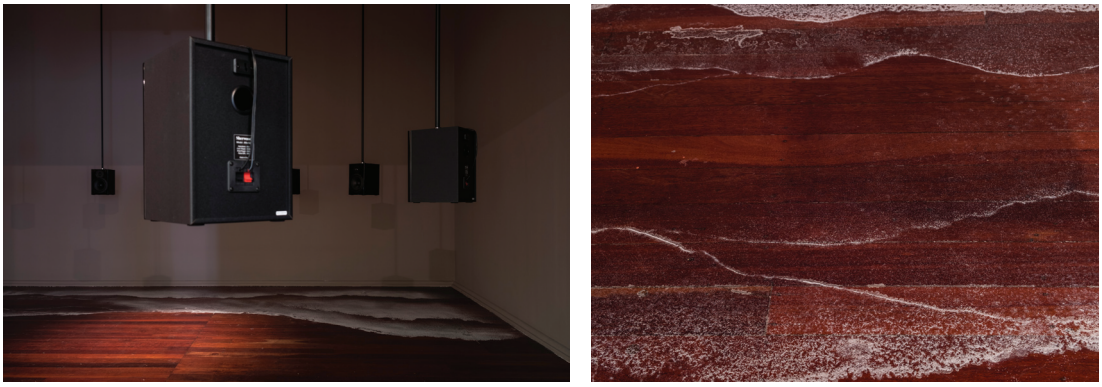

Figure 14: Cath Robinson, 2018, *Wave/wave form choir II*

As discussed in chapter 2.1, an iteration of this work, *Wave/wave form choir III* which focussed on the materiality of the tidal zone through the use of salt and video, was exhibited at the Moonah Arts Centre in 2018.

2.5 **Natural forces and musical machines**

> *The imagination is not…the faculty for forming images of reality; it is the faculty for forming images which go beyond reality, which* sing *reality.*[25]

Many contemporary practitioners considering natural forces such as waves, wind, electromagnetic fields and the movement of the planets use sound in ways that are inherently musical. Theorist James Wyness, in his essay 'Perspectives on Landscape, Sound, and Music' (2015), says '….there are clearly rooted 'musical' elements [in work founded] upon experimental procedures with conventional musical instruments and natural objects, materials and physical processes, but also in the work of any artist who carries out such processes of abstraction and articulation' (p.306). Sounds immersive and haptic nature makes it particularly suitable for exploring and expressing our relationship with the world around us. Diego Garro contends that *listening* itself is an act of engagement with our environment as we 'build meaning from sounds through interpretative and relational processes'.[26] Further, he states that environmental compositions benefit from being constructed using the same elements - 'patterns, networks, balances, flows' - that constitute the world itself.[27]

Composer, pianist and artist Percy Grainger observed the movement of natural phenomena, such as the rise and fall of hills in the distance when sitting on a train, and the movement of waves on the shore, and worked to translate this movement into sound. In the 1940s and 1950s he developed what he called

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25. Bachelard, G. Translated by Farell, E. 1983, *Water and Dreams: An Essay on the Imagination of Matter*. The Pegasus Foundation, Dallas. p.16.
26. Garro, D. 2012, 'From Sonic Art to Visual Music: Divergences, Convergences, Intersections', *Organised Sound*, suppl. *Composing Motion: A visual music retrospective*. Cambridge. p.103.
27. ibid. p.113.

'free music' machines, with the help of engineer Burnett Cross. Firstly existing instruments were adapted, and then new machines were built to create the new type of sounds he was seeking: music in which melodic lines glided freely across any pitch. In 1950, Grainger and Cross made '*Sea Song Sketch*, 3 Solovoxes played by Pianola Roll'. The Solovox was a monophonic keyboard attachment instrument, connected to an electronic sound generation box, amplifier and speaker. Three of these instruments were rigged to Grainger's Duo-Art piano to explore electronic means of creating Free Music. In this experiment, he hand-cut a piano roll with a fragment of his *Sea Song Sketch* (1907, 1922), and the actions of the piano keys pulled down the keys of the Solovoxes, which were tuned a fraction of a semi-tone apart.[28]

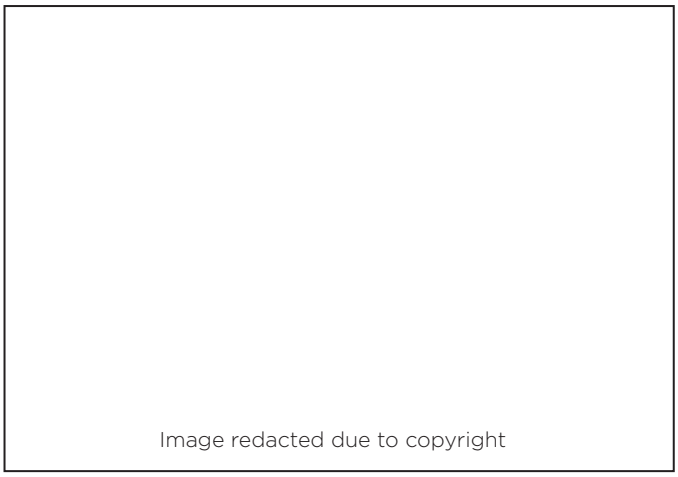

Figure 15: Percy Grainger, 1950, *Sea Song Sketch, 3 Solovoxes played by Pianola Roll*

Wyness' essay discusses theorist R. Murry Shafer's ideas of music in his book *The Tuning of the World* (1977) which considers the sonic properties already apparent in the materials of the universe: '....aspects of the Western orthodox musical paradigm...can find itself enriched or even subverted...as conventional instruments come into contact with the actual materiality of trees, rivers, meteorological phenomena and so forth, each extending and developing the

28. Grainger Museum, University of Melbourne, https://omeka.cloud.unimelb.edu.au/grainger/items/show/93. Accessed: 3/9/2019

complexity of the other' (ibid. p.306). In 'Breathing Space: Leigh Hobba and the Uncertainty of Presence' (2006) Jeff Maplas discusses how the use of sound is conducive to works that consider the world around us and our relationship to place and space in that '[The] focus on sound not only opens up the possibility of a different form of attentiveness, and so a different mode of experience, but also enables different modes of engagement with the spatial and the topographic. The exploration of space acoustically, rather than primarily in visual terms, allows space and place to appear in new and perhaps unanticipated ways' (p.5).

Artist Michaela Gleave's *A Galaxy of Suns,* although by no means using conventional instruments, offers an alternate way to imagine our relationship to stars and experience their presence, primarily through sound. Created in collaboration with Amanda Cole and Warren Armstrong, *A Galaxy of Suns* premiered as the opening event for the 2016 Dark MOFO festival in Hobart, and has since been performed as part of the 2016 Bristol Biennial, 2017 Melbourne Festival and Cementa 17.

Figure 16: Mikaela Gleave, 2018, *A Galaxy of Suns*

A Galaxy of Suns is a smart phone app which 'plays' the stars as they rise and set over 360 degrees of the horizon. Tracking the Earth's motion through space, the work uses GPS technology to document in real-time the audiences precise position in relation to the stars, sonifying stellar data to create a sound

and visual composition unique to their location in space and time. *A Galaxy of Suns* works with parameters such as location on the horizon, brightness, size, age and the chemical composition of stars, and translates them into sonic and aesthetic variables including rhythm, pitch, volume, panning, colour and light intensity.[29]

Gleave uses the app in performances which feature a 36-part chorus, singing the stars with aid of micro tonal sonic cues from the app. Performers are spatially mapped across the venue to represent location across the galaxy: the one-off compositions generated are specific to the exact location of each app user, with the rhythm driven purely by the timing of the stars as they rise or set. Pitch is mapped to each star's colour ID, a numerical value that indicates the real-life colour of the star and communicates is size, age and chemical composition. Sampled tuned percussion accompanies the chorus, with large-scale lighting tracking the progress of choristers as they sing their way across the sky: the composition building until all 360 degrees of the horizon is represented in sound and light.

Stravinsky (1970) viewed music as a 'phenomenon of speculation'[30] and *A Galaxy of Suns* captures this idea in that it speaks to the beauty and wonder of the ultimately inaccessible and intangible nature of stars. As David Cecchetto says in *Ludic dreaming,* 'The absolute rule of thought [in sound art] is to return the world as it was given to us: unintelligible. And if possible, to return it a little more unintelligible. A little more enigmatic.'[31] Within this space, Gleave extends and enriches the complexity of the materiality of the universe - giving us an opening into the make up, size and colour of stars and where they are located, yet their magnitude remains elusive and unknowable.

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29. *A Galaxy of Suns* project website: https://www.agalaxyofsuns.net/home#intro. Accessed: 3/9/20199
30. Wyness on Stravinsky, 2015, 'Perspectives on Landscape, Sound, and Music', *Contemporary Music Review,* vol.34, no.4, p.307
31. Cecchetto, D. 2017, *Ludic Dreaming : How to Listen Away from Contemporary Technoculture,* Bloomsbury Academic & Professional, New York. p.140

When working with sound we are working with something that *is* something rather than just *about* something.[32] Mineko Grimmer uses natural forces and elements to create resonating sound works, and the simple beauty and meditative quality of her works speak to me of the actuality of sound itself (and silence). Grimmers' installation *The Dialogue* (2011) consists of two pyramid-shaped blocks of ice embedded with small pebbles suspended above two square redwood basins filled with water. One basin (*Dialogue-Bamboo)* has an open three dimensional grid of layered bamboo poles, the other (*Dialogue-Wires*) consists of stretched guitar strings and hollow brass rods. As the ice melts, the pebbles fall, striking the bamboo, brass rods and piano wires extended over each basin, or missing and splashing into the water.

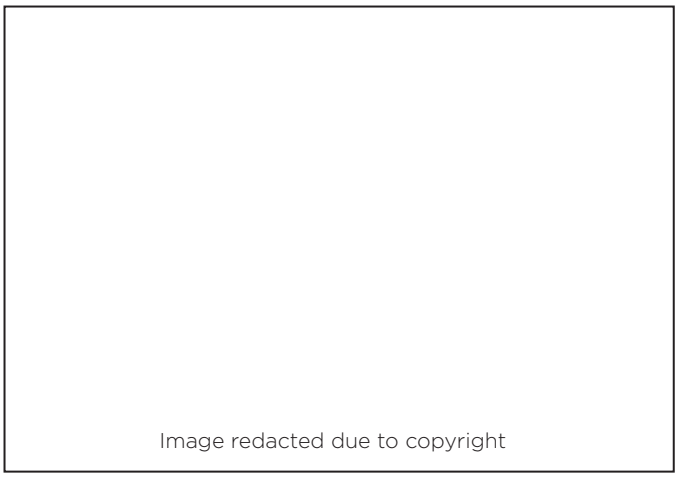

Figure 17: Mineko Grimmer, 2011, *The Dialogue*

Separately and together, *The Dialogue* pieces make music using time and gravity: this is seemingly random, yet as Leah Ollman states '[*The Dialogue* is] an ever-evolving minimalist composition forged from opposites: natural elements (wood, water, stone, metal) and an imposed grid; stillness and motion;

32. Wyness on Stravinsky, 2015, 'Perspectives on Landscape, Sound, and Music', *Contemporary Music Review,* vol.34, no.4, p.309

silence and sound'.[33] Process art and performative gestures are context to the development of Grimmer's art: Allan Kaprow used the melting of ice in a happening in 1967, and the significance of chance and the fullness of silence resonate with the aesthetic of John Cage, with whom she once collaborated.

The process of abstraction undertaken within my practice has added a musical element to the sound as a direct consequence of translating the field recordings of waves through musical frameworks: the sound has been extended and transformed using musical instruments and processes which have evolved to produce more traditionally musical outcomes with each iteration.

The visual character of the work is primarily in accordance to the mechanics of realising it, and the function of the instrument itself. This has long been a central feature of my practice - as Sean Kelly wrote in 2010 about an earlier body of work: 'Their 'aesthetic' is an open display of their construction and an honest, even aesthetically neutral reflection of the process of actualisation'.[34] How to extend the music roll through the gallery was considered in light of functionality, with the undulating movement of the paper evocative of the visualisation of the audio/visual wave form and the waves it emanated from.

33. Ollman. L. 2011, 'Art review: Mineko Grimmer at Koplin Del Rio', Los Angeles Times Online, https://latimesblogs.latimes.com/culturemonster/2011/03/art-review-mineko-grimmer-at-koplin-del-rio-1.html. Accessed: 3/9/2019

34. Kelly, S. 2010, *Shotgun* catalogue essay, CAST Gallery, Hobart

3

Methodologies and processes

Over the course of the project period, a number of methods, processes and strategies have been employed in the development and realisation of the work. This section describes how the work presented in the final submission emerged.

As discussed in chapter 2.1, a third of the way through this research I exhibited *Wave/wave form choir III* at the Moonah Arts Centre - a sound and video installation which I felt had approached a realisation of my central aim of invoking a sense of reverie in the audience. The work afforded a willingness to contemplate the intangible - an effect that is complex and individual to each person, and an experience in many ways undefinable. I was curious as to whether I could extend this engagement further by employing a framework that was less “fixed”: one that encouraged play, collaboration and improvisation and would set in motion a realisation of a work open to potential directions and unknown possibilities. As I have decided not to re-present *Wave/wave form choir III* in the final submission, this section concentrates on the how the next iteration of the research was pursued: using a player piano as a performative

sound structure which could form the foundation of an improvisational work. I had been thinking about this idea for a number of years, envisioning the player piano to be “opened up”, allowing the music roll to scroll through the space, and for the instrument itself to be transformed into an autonomous machine.

Figure 18: Initial sketch of idea

To achieve this objective, five key stages of development were undertaken: Firstly, the reconstruction of the mechanics of the player piano to become an autonomous machine which could work without the need to pedal and which would accept a looped music roll rather than one which is played/ reversed. Secondly, the composition of an experimental piano score based on my existing sound work, *Wave/wave form choir*. Thirdly, the development of a digital transcription system to transcribe the score to music roll, which could then be printed and hand punched. Fourthly, the creation of a sculptural scaffold to extend the music roll through the gallery space. Lastly, creating a performative situation enabling improvised engagement with the work.

3.1 **The player piano reconstruction**

I bought my player piano in 2011 for the Mona Scholarship exhibition *A Composition of ideas: reflective space for the Player Piano*. After viewing at least seven in various stages of disrepair, I settled on Anne's - a Beale that had been the centre of many a family sing-a-long but was now kept in the garage of a smaller house (Anne cried when I took it away).

It is termed a player piano as it incorporates a player mechanism within a normal piano. Player pianos are often called Pianolas, although Pianola is actually a trade name for a device that can attached to any piano, manufactured by the Aeolian company. The player piano works on a pneumatic system where a vacuum is built up by bellows driven by pedals at the base of the instrument. The music roll is pulled over a tracker bar containing a horizontal row of 88 small holes, corresponding to the 88 keys on the player piano keyboard. When air is sucked through perforations in the music roll paper, it sets in motion an ingenious system of valves, membranes and small bellows which drive hammers to hit the piano strings. The note will continue to sound for as long as the tracker bar hole remains uncovered.

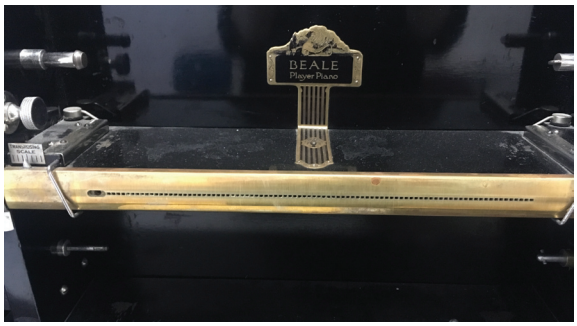

Figure 19: Player piano tracker bar

Pedalling the instrument is difficult - it takes a certain rhythm and pressure, and is actually quite exhausting. I realised during the Mona exhibition that although the audience had a certain fascination of the machine and their interaction with it, many audience members were not capable of pedalling

sufficiently to make sound, and it was up to the invigilator to step in and pedal the machine for them. This problem, along with the addition of an extended rolling system which would make pedalling - and hence sounding - exponentially harder, prompted the idea of making the machine autonomous.

In John Wynne's research log from his Soundtrap residency at Beaconsfield Gallery he speaks of American writer William Gaddis' view that the development of the Pianola was symbolic to the growth of binary thinking and a shift from artistic to entertainment values:

> 'The Pianola was the epidemic, it was a plague spreading across America a hundred years ago with its punched paper roll at the heart of the whole thing, of the frenzy of invention and mechanization and democracy and how to have art without the artist and automation, cybernetics you can see where the, damn!'[35]

Amusing as this rant on the plague of the Pianola is, art without the artist was indeed why the player piano was invented. The technology dates back to the late 1890s, and although it was not the first automated instrument, it was one of the first to become commercially available, disrupting the history and philosophy of musical interaction.[36] A reproducing piano "recorded" virtuosic performances, and the player piano "played" an accurate reproduction of that performance in the comfort of your own parlour.

Composers saw the possibilities inherent in the player piano, most commonly that of superseding the need for virtuosic performers, in both precision and speed (including Claude Debussy (1862-1918), George Anthei (1900-1959), Igor Stravinsky (1882-1971) and Ernst Toch (1887-1964)), anticipating the development of computer generated music.

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35. William Gaddis, 1998, *Agape Agape,* in Wynne, J. 2009, Research Log. p.14
Source: http//www.sensitivebrigade.com/Research_log.htm. Accessed: 3/9/2019

36. Emelianoff, L. 2007, 'The Transfigured Instrument: player piano', *Leonardo Music Journal*, vol.17, p.48

Conlon Nancarrow, a pioneer of experimental music (1912 - 1997), is arguably the most significant player piano composer. Alistair Riddell, in *A Perspective on the Acoustic Piano as a Performance Medium under Machine Control* (1989) emphasises that Nancarrow 'plumbed the depths of the instrument, exploring its unique behaviour and characteristics, and secondly, that he made changes to the physical instrument where he saw it necessary to his music' [minimising ambient resonance by putting dampeners on all strings and bringing out higher overtone characteristics by hardening the hammers].[37]

Exploring the limits of the player piano, Nancarrow produced fifty studies for the player piano, punching the rolls by hand, using extreme rhythmic complexity and jazz, and experimenting with mensural canon (a round), tempo and isorhythm (the use of different pitches over a repeating rhythmic pattern). In *Study for Player Piano #46* (1984-87) he combined these techniques.[38]

Player piano technology has long been superseded, with new electronic and acoustic interfaces continually developed. There is an inherent sensibility to the player piano though - perhaps a somewhat nostalgic one - which speaks to a tradition of people coming together for sing-a-longs and collaborative musical experiences. My intention in working with the player piano was to extend, and in a sense subvert, what the expectation of those experiences may be, creating a new kind of experiential engagement. Automating the instrument was fitting in this regard - as Gail Priest says: 'In the area of installation, the performer's 'liveness' is exchanged with the viewer's individual experience and agency within their surroundings...sound is combined with other media, materials and space to guide a viewer through a heightened sensory experience'.[39]

Initial discussions with Stuart Horton, a metal technician, about how to make the piano autonomous were based around using a crank shaft and a motor

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37. Riddell, A. 1989, *A Perspective on the Acoustic Piano as a Performance Medium under Machine Control.* La Trobe University. http://www.alistairriddell.com/MA/titlepage.html
38. ibid. http://www.alistairriddell.com/MA/titlepage.html
39. Priest, G. 2009. *Experimental Music: Audio Explorations in Australia*, University of NSW Press Ltd, Australia, p.1

to drive the pedals on the player piano. It was fortuitous to come across John Wynne's *Installation for 300 speakers, Pianola and vacuum cleaner*, as I imagined a vacuum would circumvent the need for pedals to work the bellows altogether, and would be appropriate to the player piano's domestic nature.[40]

Early attempts at making it work however were unsuccessful. To begin with, the tubing that connected both left and right bellows to the upper pneumatics was taken out and replaced with 1.5cm tubing. Welded t-junctions connected that tubing to a central t-junction attachment that ran tubing to the vacuum cleaner. This initially seemed as though it might work, although the sound was sporadic and it wasn't long before the vacuum blew up.

Figure 20: Initial circumvention of bellows

This dilemma was eventually resolved with the help of wood technician Philip Blacklow, who had successfully re-built his own player piano and knew his way around the guts of the machine. Phil made the point that the volume of air needed to drive the bellows was way larger than the size the tubing installed could accommodate.

40. As Aura Satz points out in 'Music of its Own Accord' (2010), 'Piano-playing, the distinctive trait that made the middle-class woman all the more marriageable, joined the general technological impulse toward automated domesticity' (p.77).

Beginning construction again, the tubing was replaced with new 3.5cm clear tubing and larger t-junction welded attachments were made. With the addition of an extra t-junction that incorporated an outlet valve, the new vacuum coped with running the machine.

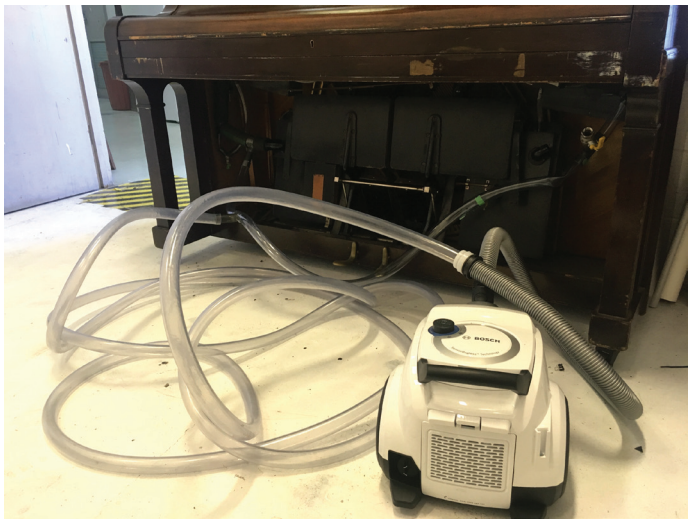

Figure 21: Successful circumvention of bellows with vacuum

Before any attempt at extending the music roll out of the machine could be made, a way of providing the instrument with the capacity to play a continuous music roll loop was devised. Normally, the player piano music roll is inserted between two pointers, pulled over the tracker bar and is hooked onto a take up spool. Pedalling the instrument winds the roll onto the take up spool, and rewinds it back onto the music roll when reversed. Not hooking to the take up spool made slippage a problem - the music roll did not move as there was nothing to grip and feed the music roll. Inserting another roller to act as a pinch roller behind the take up spool, as well as having the take up spool professionally covered in a non-slip grip liner was attempted, but unsuccessful.

Philip Blacklow's advice and expertise was invaluable in solving this problem - the take up spool was augmented by gluing strips of wood to its surface and then turning it on the lathe, allowing for more surface area on the spool. Along with the addition of non-slip grip liner, sufficient grip was attained to feed the music roll. A stainless steel rod was attached to the machine to prevent the paper loop doubling over the tracker bar.

Figure 22: Augmenting the take up spool

3.2 **Composition**

As discussed previously, composing the sound to this point had been experimental, iterative and collaborative, with its conception viewed in terms of generative processes, the outcome of which are unknown. Translating *Wave/wave form choir* to player piano roll was undertaken in the same spirit.

As I have only a rudimentary knowledge of music notation, my initial attempts at scoring the choir through both listening and using scoring apps (such as MuseScore and Scorecloud) were unsuccessful, producing scores full of chaos and overloaded notes that would be impossible to translate to music roll - resulting in more perforation than paper.

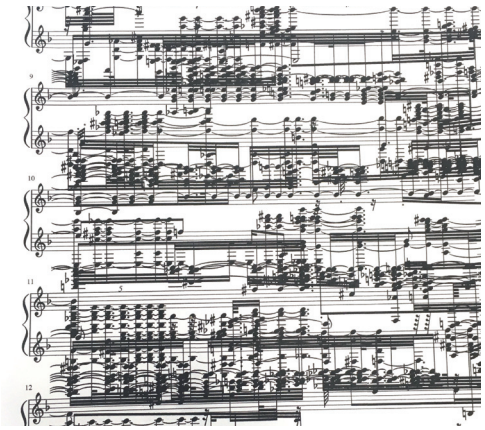

Figure 23: Example of score result from app

Enlisting the help of pianist Catherine Morse, along with supervisory discussions, the decision to translate only five of the sixteen choir voices to music roll was seen as a way of breaking down the complexity of the sound - as the voices sounded a half tone off in pitch to that of the player piano, and resonate in an entirely different way. As Morse wrote in an email:

> ‘The problem was how to notate on a fixed pitch instrument, within fixed and shared scoring norms, the free flowing voices of the singers which are not pitch fixed or controlled. The decision to work with a metronome count of 1 beat per second allowed for the development

> of a 4/4 timing bar system so that the notated voices could be played in correct timing in relation to each other. This was the first way of overlaying a system upon the sound files.'

The use of the metronome and subsequent development of the 4/4 timing system proved invaluable in the transcription process from score to music roll, especially when trying to discern the entry point of each score in relation to each other, as the singers did not all begin at the same time. Catherine spent a lot of time listening and gradually refining each score, with the decision to keep the tones as simple as possible (rather than harmonizing the tones in chords) was arrived at through experimentation and discussion. Morse writes:

> 'Then there was a choice to sit at the Pianola and play and replay each track to define the notes or mashing of several notes which could give an approximate replication of the vocal tracks. Within this there were many subjective decisions as to where to decrease/ increase the harmonics of a sound/note, where to clip or extend a vocal effect/breath as it crossed through the tones within the vocal track and created variations in timing... I tended towards scoring with simplicity the melodies and notes that correlated significantly with the fixed tones of the Pianola and using mashed notes where the richness of sound seemed to demand it. Having said this, I definitely tried to allow for richness of tones and rhythms as much as I could, even though, as I said, it was a translation of an unfixed sound/tone into a fixed and structured system.'

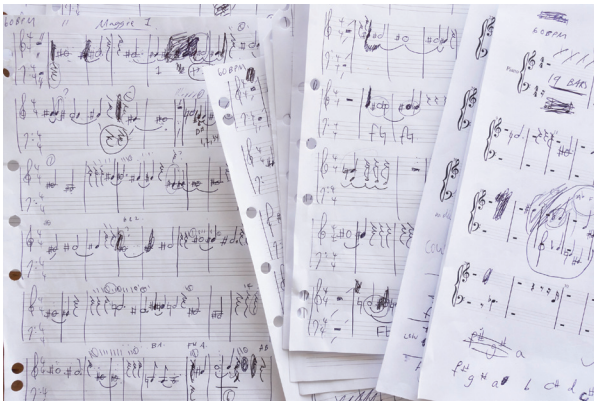

Figure 24: Catherine Morse's score in development

3.3 **Transcription**

Transcribing the finished score to player piano music roll entailed the development of a digital transcription system. Eric Beheim's *Ori-thematic Deluxe Music Roll Making Manual* (1979) contains instructions for copying and making hand cut player piano music rolls from sheet music, and this was an invaluable resource. Beheim's manual provided a tracker bar scale - which aligns the holes on the tracker bar to the notes on the key board, and a time scale - providing the distance the paper roll travels according to the length of the note. On the time scale, the time values of notes and rests are expressed as black vertical lines - as they would appear when marked on the music roll. The time scale is divided into 16 squares, with a whole note starting on square 1 and extending to square 15, leaving square 16 for releasing the tone.

Figure 25: Eric Beheim's Tracker Bar Scale

Figure 26: Eric Beheim's Time Scale

I set up an analogue transcription system as prescribed in the manual. The music roll is laid on a cutting matt, underneath a horizontal ruler which has the tracker bar affixed. The time scale is mounted on a 45° triangle, which slides left and right along the tracker bar. Once the note is identified from the score

and located on the tracker bar, a line is drawn on the music roll in accordance to its time length on the time scale, and perforated. Beheim suggests perforating the music roll with a scalpel and ruler, although I have found that this makes the paper quite weak and easy to tear. Perforating small holes with a metal punch and hammer sounds the same when played - as long as they are positioned very close together - whilst retaining the papers strength.

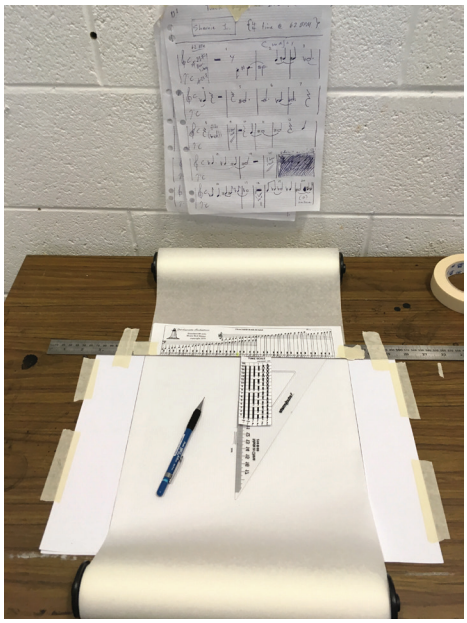

Figure 27: Eric Beheim's transcription system

I found Beheim's system clunky, difficult and hard to see - the size of the music roll's perforation is only 1.7mm and a mark made just a few millimetres off sounds an entirely different note. This inhibited the creation of the music roll by hand alone.

In light of this, I designed a digital version of Beheim's transcription system in Adobe InDesign. The width of the piano roll was measured and drawn, alongside the exact position of the tracker bar in relation to the left edge of the paper (which, incidentally, Beheim had mistakenly measured at 25mm instead of 19mm, causing me some consternation to begin with when the wrong notes were sounding). An A3 document provided space for 4 bars of music, and a template was made with the tracker bar scale positioned on the page every 9.3cm (the length of 4 beats per bar). A purple line signified

Middle C, to help with orientation. The length of each possible note or rest was placed on the side of the template, and included a lighter section at the end signifying the releasing tone not to be perforated.

Successive documents were then made from the template to encapsulate the 56 bars on the scores. The five scores were transcribed to the same page individually, using a different colour for each score/voice: the note was read on the score, selected according to its length, aligned to the tracker bar scale, and placed in the document.

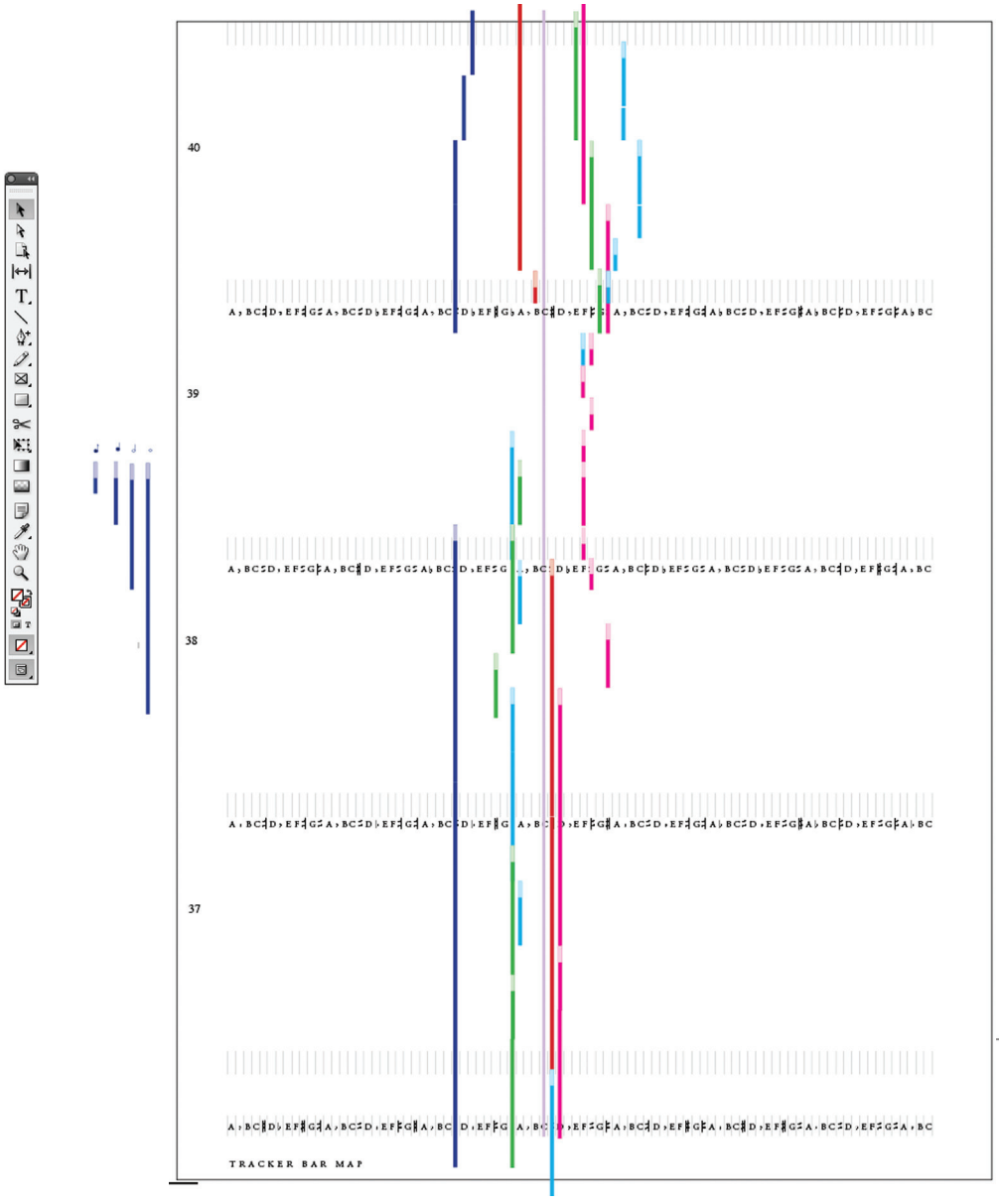

Figure 28: Screen shot of digital transcription system in InDesign

The digital transcription system avoids the limitations of Beheim's analogue system: flexibility in being able to view and align each note to the tracker bar is possible through zooming in and out; the length of each bar and note is exact and easily placed; and smudges on the music roll are avoided as mistakes would not have to be rubbed off the paper with an eraser.

Once all five voices had been transcribed and printed, the pages were mounted to a cutting matt (one page at a time) with the blank music roll laid over the top. Using a metal punch and hammer, holes were perforated along the prescribed lines. As the music roll paper is 14 meters long, two music rolls were made, with each having two versions of the 56-bar score.

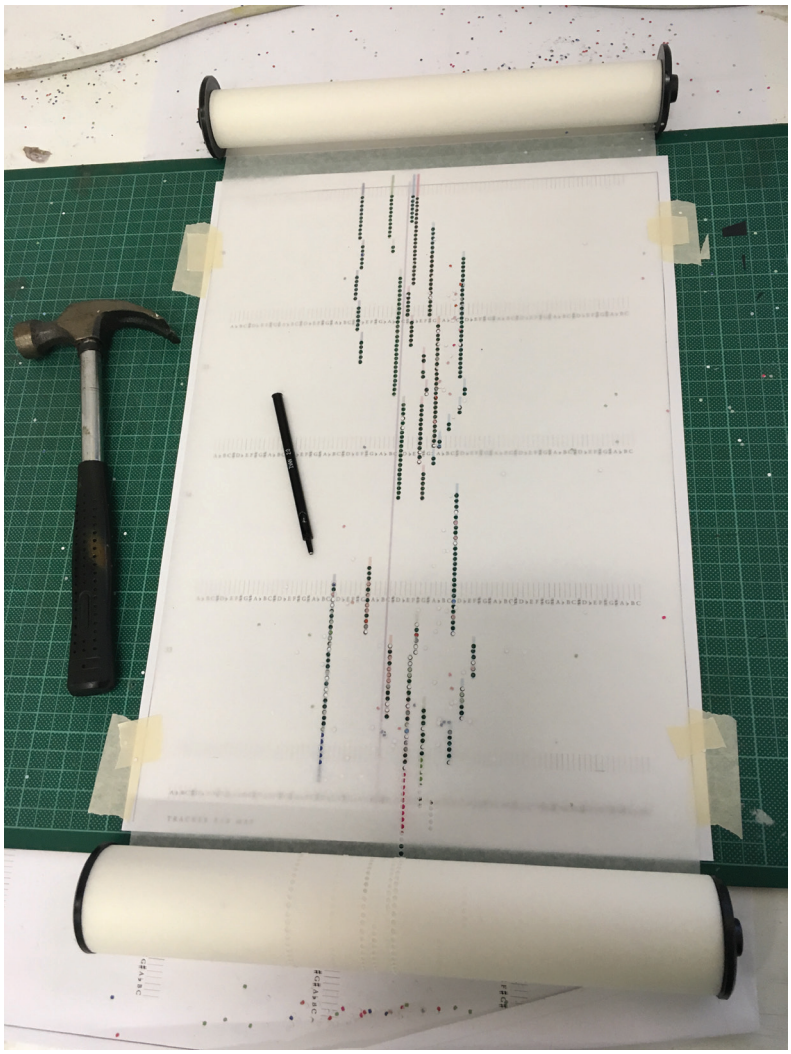

Figure 29: Hand punching the player piano music roll

3.4 **The extended framework**

I booked time in the Plimsoll Gallery in order to test the various hanging heights of the structure to be constructed which would hold the additional rollers and extend the music roll through space. Working in the long gallery space, a dummy music roll loop was threaded over and under rollers hung from the lighting track with fishing line and tape, to a distance of 8 meters. The rollers had been made from 2cm x 30.5cm grey plastic electrical tubing with a bearing inserted in each end, and it became apparent viewing this hang that the small circumference of the rollers made the hanging wave form very angular.

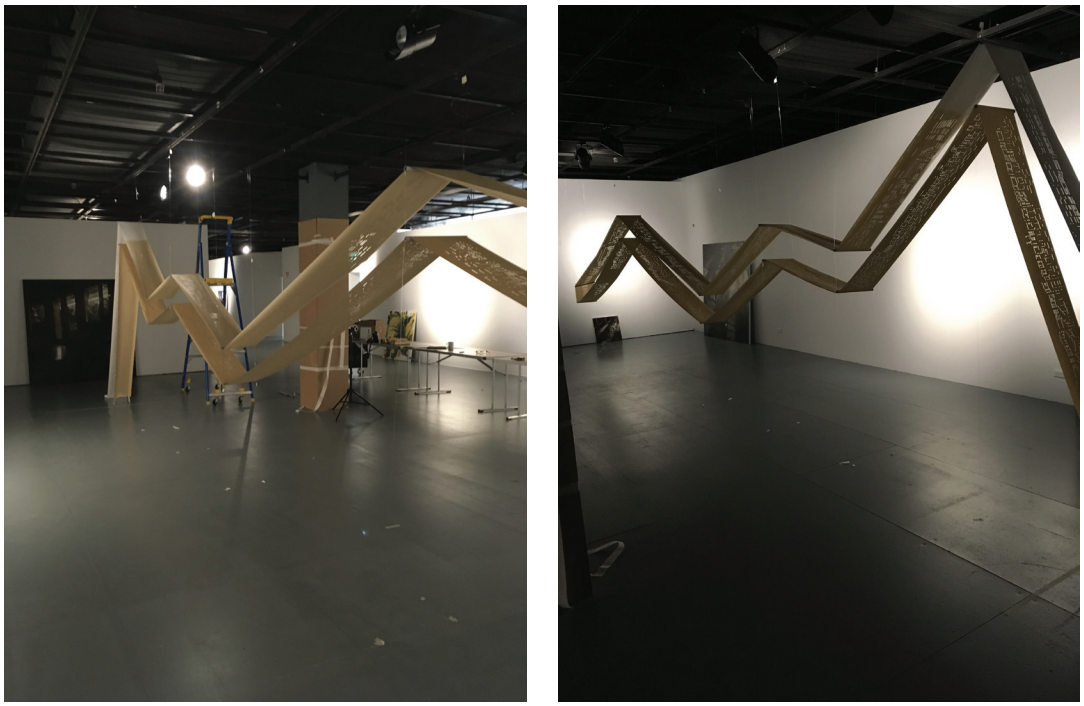

Figure 30: Test hang in Plimsoll gallery

Larger rollers were made out of white postal tubes, with a circular end of laser cut mdf holding the bearings central. The new rollers were aesthetically more appropriate as well as counteracting, to a degree, the overt diagonals in the framework.

Figure 31: Constructing larger rollers

My initial intention had been to have a series of metal structures housing 4 rollers each running along the floor to hold the music roll. Reflecting on the Plimsoll hang, the floating, ephemeral nature of the paper suspended in the air seemed visually more in line with both waves and wave forms: I decided to make a lighter structure which could be hung from the grid in the ceiling.

With help from metal technician Peter Stannard, six hanging structures were made: double lengths of 1cm square steel were cut to the prescribed length, with holes drilled at the bottom and first 30 cm where the double rollers were to be affixed. 12 stainless steel rods were inserted into the rollers, and 24 stainless steel bolts were lathed and tapped, enabling the rods to be screwed to the frames. A metal top plate was welded on to each structure to hold it together and provide hanging purchase, and the structures were spray painted black.

Testing the rolling structures in conjunction with the player piano was undertaken in a much smaller multi-purpose sound stage - a space which had the advantage of a high ceiling similar to that of the performance venue which has a ceiling height 259cm higher than the grid in the Plimsoll Gallery ceiling. As the space does not have a similar ceiling grid, planks of wood and gaffa were used to create a structure to hang from. A number of issues arose: aligning the hanging structures to be centred on the tracker bar and at the same angle was

problematic, and the fact that the structures were light and long meant the pull from the paper swung them towards the machine. Drilling holes a third of the way down each length of metal, stainless fish trace wire was affixed and extended to the track 1.5 meters in both directions (front and back) and tensioned to hold the structures still. This was not a perfect solution: getting the tension right and the roller level proved difficult.

Figure 32: Tensioning rollers, second test hang

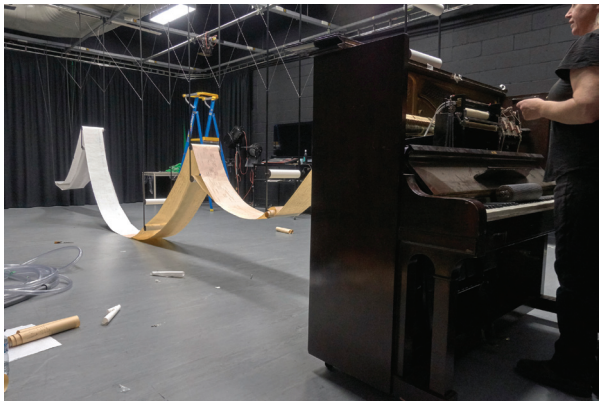

Figure 33: Installing the music roll paper

That the player piano did in fact play the extended music roll was an exhilarating and delightful moment. Although slight variations in the hanging angles of the rollers tended to make the music roll track sideways - and this became exponentially worse over distance - having only a couple of days before the performance event, the interaction of pulling the paper back onto the rolls became part of the performance.

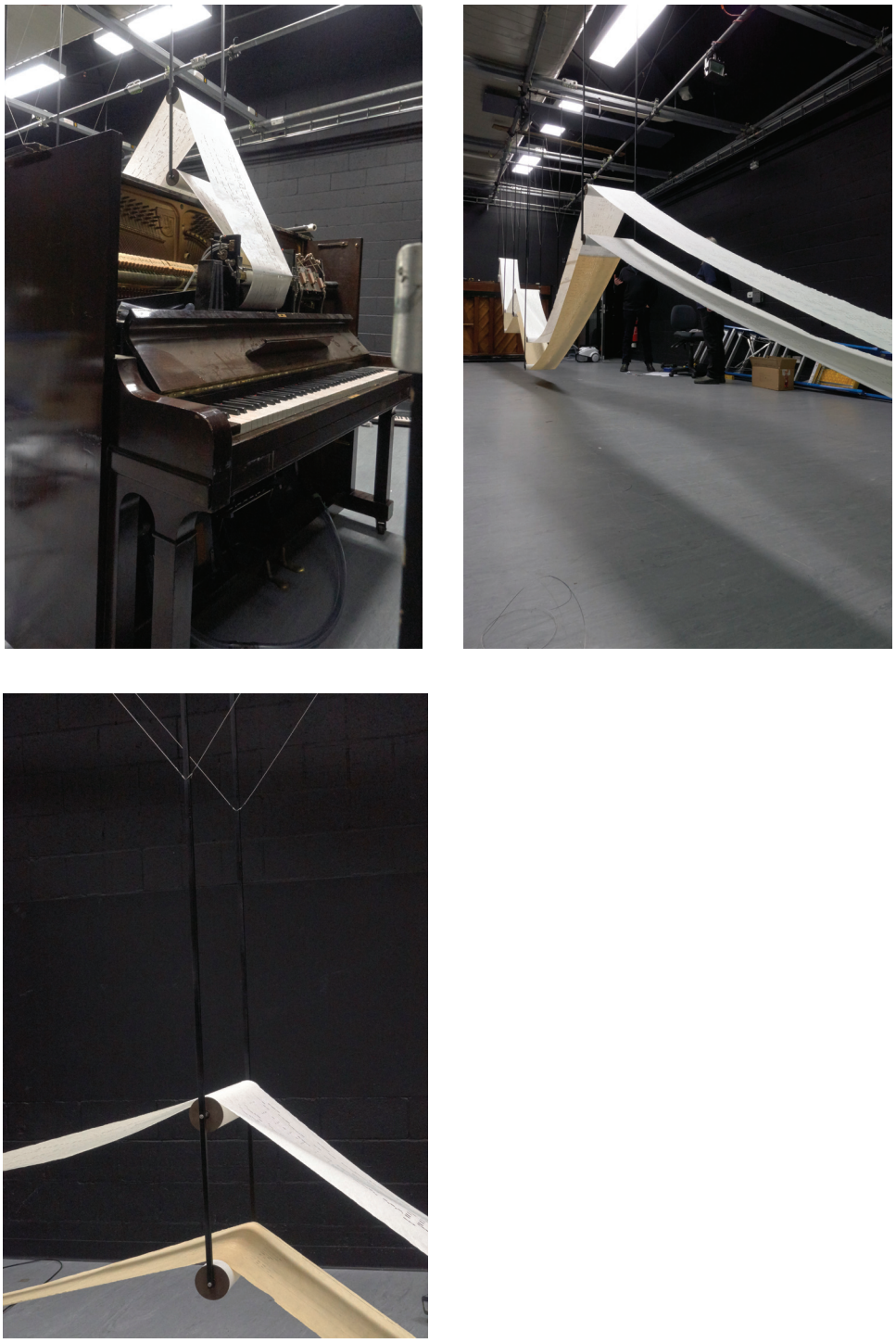

Figure 34: The player piano successfully playing the music roll

3.5 **The performance event**

> *Sound [...] is a form of dwelling within which particular experiences occur, particular routes toward each other unfold, and from which views onto the world are revealed. Within this architecture, this event-space, a nuanced, mutable materiality can be found by which to form, moment by moment, connections and relations*.[41]

> *As with the sea, sometimes there is nausea on the cusp between chaos and order. Something escapes, something retreats.*[42]

Okenden Estate's apple cool store in Moonah was the venue chosen for the performance. The oldest surviving cool store in Tasmania, it is hidden away in an unlikely industrial area and is not well known. Entering the space through a very low door, a low ceilinged, heavily beamed lounge area is decorated with objects and furniture from yester year, including a bar replete with a collection of crystal glasses. Alongside is a large open space with a very high ceiling, wooden floors and walls and a piano overflowing with candles in one corner. Reminiscent of the look and feel of a "speakeasy" (which it is in fact used for once a month), it provided an ideal context for a performance centred around a player piano with a focus on social, collaborative and improvised communal action.

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41. Labelle, B. 2012, 'Acoustic Spatiality', *The Zone and Zones - Radical Spatiality in our Times*, vol.2, no.3, p.2. https://www.sic-journal.org/ArticleView.aspx?aid=123. Accessed 10/11/2018.

2. Madsen, V. 1997, 'The Call of the Wild', *Uncertain ground: essays between art and nature*, p.37. Art Gallery of New South Wales, Australia.

Figure 35: Okenden Estate apple cool store - the performance space

I titled the event *A reverie of waves: 3 improvisational performances for vacuum powered Player Piano.* Artists with experience of improvisational practice were invited to perform in three separate sets based on the genres of jazz, voice and sound art respectively - I wanted to see if the performers provoked conceptual mobility in the sound installation, a somewhat ambiguous stimulus, and if this became more or less apparent according to the performers instrument, identity and genre.

Figure 36: Invitation to performance event

The installation provided a strong visual force in the group, with the artists seeming to intuitively interact with the work in the same way they would with another musician: at times harmonious, sometimes conversationally. The jazz ensemble consisted of double bass (Nick Haywood), percussion (Alf Jackson) and saxophone (Alastair Dobson). The six professional singers were Maria Lurighi, Maggie Bowman, Alice Mahina, Angela Schramm, Sharnie Stimm and Amber Clark. Sound artist Matt Warren used electric guitar, voice and detuned radio to respond to the work.

Having only one day to install the work was stressful, not least because just moving the player piano is extremely difficult (its much heavier than a normal piano due to the internal mechanics). That I was hanging from an old ladder already installed in the ceiling (which the venue used to hang their lights from) became a problem: the ladder was wider at one end than the other and not level. Attaching the rolling structures with grip ties as I had done in the test hang was impossible as they needed chocking to level out as well. A quick trip to Bunnings to buy a series of clamps fixed the problem. As the room was shorter in length than the Plimsoll Gallery space, four hanging structures were used rather than six. The install went right down to the wire, with people arriving before I had fastened the music roll loop together.

Not having heard the sound from the music roll before the event (having used old music rolls that I could easily cut down for more tension in the text hang) it was surprising and somewhat disappointing to realise how fast the tempo was - resulting in the sound being much more chaotic than I had expected (much like my first composition from the original wave form visualisation *Wave/wave form song*). On reflection, the tempo needed to be slowed by at least four times in order for the sound to acquire any sense of the immersive quality the composition aspired to capturing - and this includes leaving space in the sound for silence and pause (which is in the score but was not apparent). I intend to fix the tempo problem by replacing the small sprocket (which driven by the air motor turns the take up spool) with a large mdf

wheel.[43] If that is unsuccessful, I will need to revisit the translated digital score and extend the length of each note and rest, re-print and re-punch new music rolls.

That the music roll kept sliding to the left over the tracker bar meant that the perforations on the roll were not sounding the notes from the composition, but sounding random notes instead - adding to the discordance of the sound. I intend to fix this problem by having the first set of rollers physically attached to the machine to make sure the feed is keeping the music roll in line with the tracker bar holes. The issue of the music roll paper sliding off the roller structures will be addressed by re-making the laser cut ends of the rollers to include a flange, providing an edge for the paper to rest against. If this is not a successful fix, constructing a more stable floor based structure - as in my original sketch - which would align the rollers to the exact angle and level in accordance to the piano take up spool will be attempted.

The choice of venue did endow the installation and performance with a sense of a community coming together to share an experience: the space itself encouraged social interaction, and there was a real experiential engagement with the work - with the audience displaying an open willingness to speculate and wonder.

Figure 37: The audience

43. This solution was seen in John Wynne's research log: 2009, p.14. Source: http//www.sensitivebrigade.com/Research_log.htm. Accessed: 3/9/2019

That the installation itself filled the centre of the space, and the artists responding to the work were interspersed within the audience, added an element of intimacy to the work, and a 'liveness' stemming not only from the sounds the artists were producing moment to moment, but also because of the expressions and gestures of the performers themselves. The separation of the artists throughout the space revealed the sound as a changing construct - the focus of which changed depending on where one was situated in relation to the installation and the performers. John Cage discussed the effect of separating musicians within performance in the essay 'Themes & Variations' (1982):

> 'This separation allows the sounds to issue from their own centres and interpenetrate in a way which is not obstructed by the conventions of European harmony and theory about relationships and interferences of sound... Furthermore, this separation in space will facilitate taste and the independent action of each performer, who...has turned his mind in the direction of no matter what eventuality' (p.185).

I had not given the artists' specific instructions on how to respond to the installation, although all were aware that my composition had been developed from field recordings of waves, and many had heard earlier iterations of the sound. The duration of each performance was decided by the artists (although a parameter of 3 - 7 minutes was set by me). This approach was undertaken in the spirit of spontaneous inter subjective exchange: as Ornette Coleman, a proponent of 'Improvised Music' explains in 'Change of the Century' (1959):

> 'I don't tell the members of my group what to do. I want them to play what they hear in the piece for themselves. I let everyone express himself just as he wants to. The musicians have complete freedom, and so, of course, results depend entirely on the musicianship, emotional make-up and taste of the individual member' (p.254).

The use of improvisation did enliven the installation and add creative character to the event: watching the artists respond to the installation and each other 'in the moment' was both fascinating and engaging. Keith Sawyer states

that, 'improvisation requires the cognitive ability to balance two competing tendencies: coherence and inventiveness, and the emergent [derived from the flow of prior interaction] constrains a performance act on many levels simultaneously: rhythm, tone, harmony, melody'.[44] 'Inventive coherence' is essentially what the improvising artists added to the installation: as the sound emanating from the player piano was chaotic, random and inconsistent, the artists responding to it lent a coherent sensibility - or access point if you like - to sound that would otherwise perhaps have become just annoying.

The diversity of each set was notable and unique. The jazz ensemble riffed with the installation in a powerful, upbeat and vigorous way that was delightful to hear and watch. The effect moved the sound of the installation somewhat away from itself and towards the genera of jazz - towards something more knowable and identifiable as music. Becker (1982) contends that improvising jazz musicians follow shared structures which a knowledgeable audience is familiar with, reflecting an etiquette with the audience which aids in the appreciation and understanding of the performance: this performance etiquette, both explicit and implicit, provides a structure that defines the genre of the improvisation itself, emerging informally in a community of practice.[45] This seemed the case here - the jazz provided a kind of mediation between the installation, audience and musicians.

Figure 38: Jazz improvisation

44. Sawyer, K. 2008. 'Learning music from collaboration', *International Journal of Educational Research,* vol.47, p.58

45. Sawyer, K. 2000, 'Improvisational Cultures: Collaborative Emergence and Creativity', *Improvisation, Mind, Culture and Activity,* vol.7, no.3, pp.180-185

The singers created a musical setting to the sound as well, although one less identifiable. The installation became an accompaniment to the voices: again, they were expressive and engaging to watch, and naturally positioned themselves closely surrounding the undulating paper, which seemed to affect them in a visually sensorial way.

Having worked with some of the singers before when making *Wave/wave form choir*, this set of the performance was the most problematic for me - due entirely to my prior expectations of what the sound, and their reactions to it, would be. Rather than a similar evocation of the immersive and meditative nature of waves as the sound of *Wave/wave form choir* was, the sound here was random and somewhat chaotic - and the singers therefore responded in a similar manner.

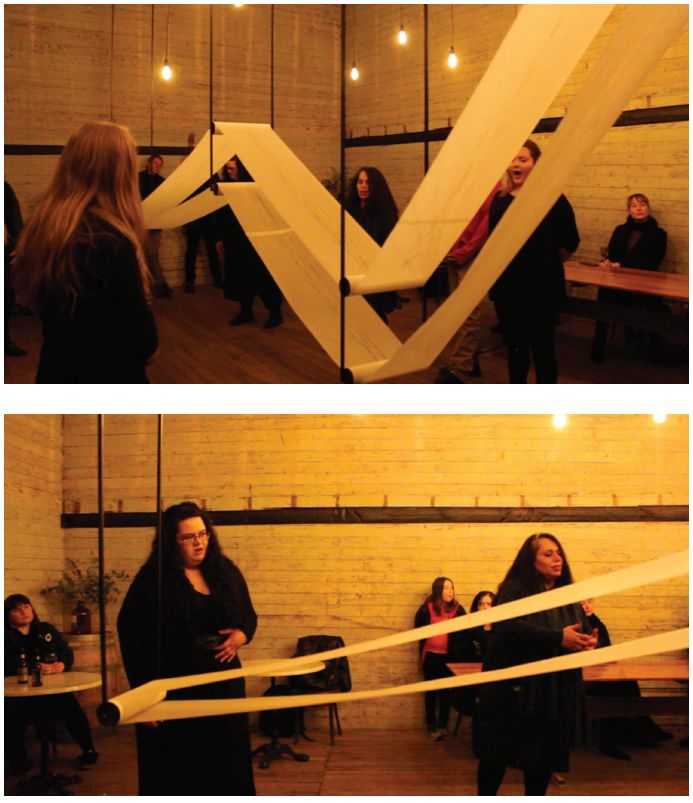

Figure 39: Voice improvisation

Sound artist Matt Warren responded to the work with an electric guitar, his amplified voice and pre-recorded detuned radio clips. I felt that Matt created sound in dialogue with the installation - not amplifying its random nature but somehow smoothing over it, filling it with the over-arching bass that it needed, whilst still having a conversation on the side.

Figure 40: Sound artist Matt Warren's improvisation

4

Conclusion

The project *Waves, thoughts and a player piano* is both a speculative and practical investigation of strategies to invoke notions of reverie through a uniquely re-constructed player piano and musical improvisation.

Motivated by the contemplative experience of listening to the sound of waves, the research considers sonic reverie and its value as a locus for creative thought and stimulus to sound and installation practice - recognising that art based on imaginative translations of real world experiences may contribute to depths of experience as intensive as they are expressive.

The project sets out new strategies for exploring, translating and transcribing place-based reveries and embracing sounds intrinsic ambiguity through developing new frameworks for composition and presentation. That ‘music’ may emerge in this space is a direct consequence of generative musical frameworks, processes and intention. These processes of auditory abstraction have, in translation, become distinct from their source - seen here as a

response to experience which maintains its vitality, avoids fixed meaning, and tests and extends traditional boundaries relating to composition, performance and installation.

The reconstruction of the player piano allowed the instrument to gain autonomy by circumventing the need to pedal (through the addition of a vacuum cleaner powering the bellows) and the need to re-wind the scroll (by re-envisioning the take up spool, providing a capacity for infinite looping). This autonomy provides a consistent rhythm to the liminal sonic quality of the composition, which falls somewhere between music and sound. The aesthetic of the installation is based on functionality and the mechanics of realisation, and the extension of the music roll out of the instrument and into the gallery space provides a visual character to the installation equivocal of both waves and audio/visual wave forms.

The player piano's reconstruction is seen within this research as a tool for building new sound experiences. As an instrument, the player piano has a significant presence, and a history and tradition that implies people gathering together for collaborative musical performances: here, the player piano provides a performative sound structure for artists and audiences to engage, collaborate and improvise with.

Improvising with an instrument that plays a continuous loop of sound and is not adaptive creates a relationship that differs from musicians freely improvising with each other. This is not seen as an impediment, but rather a practical and creatively ambiguous stimulus to performer involvement and sonic creativity. The resulting interaction of the compositional concept, realised installation and performers and audiences collective experience of the work, creates a collaborative and creative synergy. The framework *generates*, extending and transforming aural experience open to unanticipated, moment by moment, connections and relations.

The use of improvisation has infused the process - both as a methodology to obtain meaningful results in composition and as a way to characterize collaborative musical experience in the presentation of the work. Locating performativity as the methodological paradigm, the research recognises that generative and iterative processes allow for transformations of material and affective things in the world.[46] This approach to the enquiry is intrinsically experiential: produced through cycles of action research, the performative is *affective*.

The work presented for final submission has been considered in terms of its potential to invoke notions of reverie, both as an installation in itself and as a provocation to possible musical responses which may extend or realise that potential. Grounded in the experience of the here-and-now, the work is seen as open to a virtually unlimited range of possible readings, through which it may acquire new vitality according to taste, perspective or performance - a tacit invitation to further thought. As such, the work is considered open to a range of outcomes which may, as Lexar contends, 'encompass "potential thought", the possibility of "thinking a thought" and "thinking of a potentiality"'.[47] In the spirit of experimental practice, these outcomes are understood as intrinsic to subjective awareness of the unknown, the speculative and the curious.

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46. Bolt, B. 2016, 'Artistic Research: A Performative Paradigm', *Parse Journal*, p.130

47. Lexar, S. 2010, 'Piano+: An Approach Towards a Performance System Used Within Free Improvisation', *Leonardo Music Journal,* vol.20, p.42

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Accessed: 3/9/2019

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Source: https://www.moma.org/interactives/exhibitions/2013/soundings/artists/11/works/
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2017	Bachelor of Fine Arts Honours (1st Class), Tasmanian College of the Arts, University of Tasmania
1994	Bachelor of Fine Arts, Tasmanian School of Art, University of Tasmania (Deans Roll of Honour)

AWARDS / PRIZES:

2014 - 16	Connected Studio Residencey, Arts Tasmania (included grants for mentorship/tech support)
2013	Contemporary Art Tasmania Studio Recipient
2011	Arts Tasmania Assistance to Individuals Grant (towards participation in *Wonderland*, MOCA, Taipei)
2011	Arts Tasmania Artsbridge Grant (towards solo exhibition at Firstdraft, Sydney)
2010	MONA Scholarship 2010
2010	Australia Council for the Arts New Work Emerging Grant
2010	Arts Tasmania Assistance to Individuals Grant (towards exhibition at KINGS ARI, Melbourne)
2009	Moorilla Prize, *City of Hobart Art Prize 09,* Tasmanian Museum and Art Gallery, Hobart
2009	Poimena Art Prize, *Brink,* Poimena Gallery, Launceston

SOLO EXHIBITIONS:

2019	*Waves, thoughts and a player piano*, Plimsoll Gallery, Hobart
2019	*A reverie of waves - 3 improvisational performances for vacuum powered Player Piano*, Ockenden Estate, Moonah
2011	*Thought noise wave form preludes,* Firstdraft, Sydney
2011	MONA Scholarship Exhibition, *A Compositon of Ideas: Reflective Space for the Player Piano,* MONA, Hobart
2010	Shotgun*, Thought noise resonator,* CAST Gallery, Hobart
2007	*Um and Other Thoughts*, INFLIGHT Gallery, Hobart

GROUP EXHIBITIONS:

2018	*Water and Wave Forms* (with Nikala Burke), Moonah Arts Centre, Hobart
2018	*Hatched,* Perth Institute of Contemporary Art, WA
2017	*Wave/wave from choir,* Honours exhibition, Tasmanian College of the Arts, Hobart
2015	*Connected,* Ten Days on the Island, 146 Artspace
2015	*Forever Now,* Mona Foma, Aphids and MOFO golden record to space
2015	*Innappropriate/appropriate Ideas*, Curated Shelf ARI, Hobart
2014	*Tidal,* Devonport Regional Art Prize, Devonport Regional Gallery
2013	*Ghost Hunters,* Plimsoll Gallery, Hobart
2012	*Wonderland: Contemporary Art from Australia*, Museum of Contemporary Art, Taipei, Taiwan
2012	*John Fries Memorial Prize*, Gaffa Gallery, Sydney
2012	*SCAP 3D,* Noosa Regional Art Gallery, Queensland
2012	*Come to Life,* Queen Victoria and Albert Museum, Launceston
2011	*I am Satan*, Hell Gallery, Melbourne
2010	*Chora Choruses* (with Fiona Lee), KINGS ARI, Melbourne
2009	**some text missing**, CAST Gallery, Hobart
2009	*City of Hobart Art Prize 09*, Moorilla Prize Winner, Tasmanian Museum and Art Gallery, Hobart
2009	*Brink,* Poimena Art Prize Winner*,* Poimena Gallery, Launceston
2009	*A tendency to construct* (with Trudi Brinckman), 6a ARI, Hobart
2009	*Mountain*, Installed Taste, Taste of Tasmania
2008	*Unsustainable Weight of Place*, Watch This Space ARI, Alice Springs
2008	*5 years of art*, INFLIGHT ARI, Hobart
2007	*Board of INFLIGHT*, FirstDraft ARI, Sydney; Arts Alive, Launceston; INFLIGHT ARI, Hobart
2006	*...text me*, Devonport Regional Gallery, Devonport
2005	*And Then Some*, INFLIGHT Gallery, Hobart

SELECTED PUBLICATIONS/REVIEWS:

Andrew Harper, 'Water and Wave Forms'*, The Mercury*, July 2018

Forever Now, Mona Foma, Aphids and MOFO golden record to space, 2015, http://aphids.net/projects/Forever_Now

Tidal, Devonport Regional Art Prize, Devonport Regional Gallery catalogue, 2014

Matt Warren, *Ghost Hunters,* Plimsoll Gallery catalogue, Hobart 2013

Megan Keating, *Thought noise preludes,* 'Wonderland: New Contemporary Art from Australia' catalogue, 2012

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Clyde Selby, 'Shotgun', *The Mercury,* September 19, 2010
Mat Ward and Wayne Brooks, 'Shotgun', Arts on the Edge, Edge Radio, September 20, 2010
Dan Rule, *Chora Choruses*, *The Age,* Melbourne A2, March 2010
Sally Rees, 'Immaterially Communal/Communally Immaterial', www.kingsartistrun.com.au 2010
Sean Kelly, '*some text missing*', *Artlink*, vol 29 no 4, 2009
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'City of Hobart Art Prize 09', Tasmanian Museum and Art Gallery catalogue, 2009
Clyde Selby, 'City of Hobart Art Prize 09', *The Mercury,* July 4, 2009
Wayne Brooks and Mat Ward, 'Um Chorus', Arts on the Edge, Edge Radio, July 2009
Vincent McGrath, 'Awards draw out the talent', *The Examiner,* July 18, 2009
Briony Kidd, 'Poimena Art Prize', ABC Radio Northern Tasmania, June 2009
Claire Van Ryan, 'Necklace proves a winner in Poimena art prize', *The Examiner*, June 27, 2009
Sally Rees, *'*Some thoughts in the wake of viewing a collaboration*',* www.stock-site.org.au 2009
Shauna Swanson and Mat Ward, Arts on the Edge, 'A tendency to construct', Edge Radio, May 2009
Philip Watkins, *'*Um Stuff - To Think Twice*', Australian Art Collector,* Issue 41 July - Sept. 2007
INFLIGHT, 'Board of INFLIGHT', FirstDraft ARI catalogue 2007
Zara Stanhope, 'Nourish - A Guide to Craft and Design Practitioners in Tasmania*',* CAST catalogue, 2007
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